

BIENNIAL REPORT

1952-1954



NORTH CAROLINA
DEPARTMENT OF AGRICULTURE

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BIENNIAL REPORT

for 1952-1954

NORTH CAROLINA
DEPARTMENT OF AGRICULTURE

L. Y. BALLENTINE, COMMISSIONER

RALEIGH, N. C.

OUR COVER PICTURE

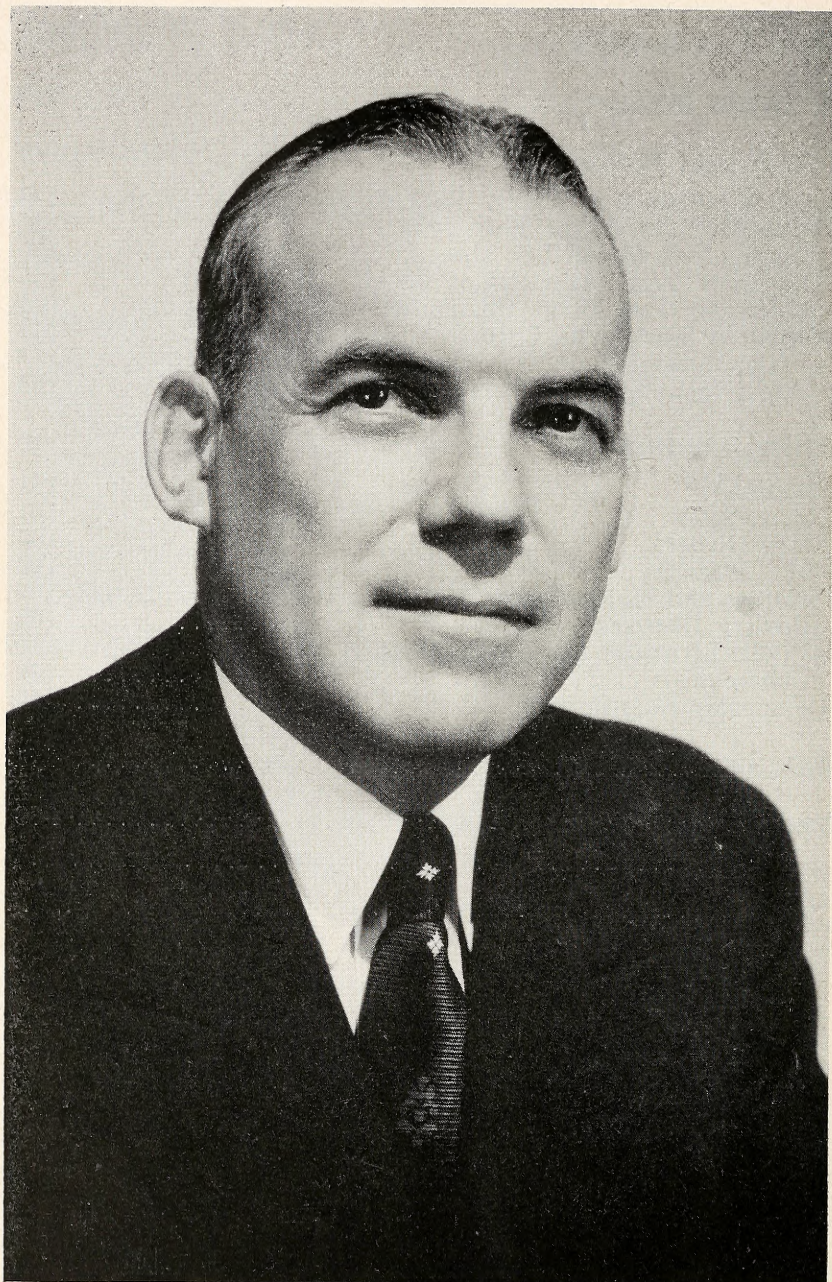
The photo reproduced on our cover shows the front of the recently completed Annex to the Agriculture Building in Raleigh. The first two floors and a mezzanine are devoted to the State Museum of Natural History. The other three floors provide additional laboratory and office space to meet the growing needs of the Department of Agriculture.

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L. Y. BALLENTINE
Commissioner of Agriculture



JOHN L. REITZEL

Assistant Commissioner of Agriculture

STATE BOARD OF AGRICULTURE

L. Y. BALLENTINE, *Commissioner*

Ex-Officio Chairman

GLENN G. GILMORE.....	Julian
HOYLE C. GRIFFIN.....	Monroe
CLAUDE T. HALL.....	Roxboro
O. J. HOLLER.....	Union Mills
GEORGE P. KITTRELL ¹	Corapeake
J. MUSE MCCOTTER.....	New Bern
CHARLES F. PHILLIPS.....	Thomasville
J. H. POOLE.....	West End
A. B. SLAGLE.....	Franklin
J. E. WINSLOW.....	Greenville

¹Appointed by the Governor to replace R. V. Knight, Tarboro. Mr. Knight served under an interim appointment from December, 1952 to May, 1953, to fill out the unexpired term of Miss Ethel Parker, resigned. Miss Parker had served on the Board continuously since June, 1941.

PERSONNEL

OF THE

STATE DEPARTMENT OF AGRICULTURE

JUNE 30, 1954

L. Y. BALLENTINE, *Commissioner*

ADMINISTRATION

JOHN L. REITZEL.....*Assistant Commissioner*
LILLIAN R. PARKER.....*Stenographer Clerk I*
PHOEBE D. POWERS.....*Stenographer Clerk III*
DORIS B. WOFFORD.....*Stenographer Clerk III*

DIVISION OF ACCOUNTS

A. R. POWLEDGE.....*Chief Auditor*
DOROTHY A. CASH.....*Accounting Clerk I*
MARY B. CRAWFORD.....*Accounting Clerk I*
ELLA V. DODSON.....*Accounting Clerk II*
ELSIE W. JORDAN.....*Accounting Clerk III*
GRACE H. MALLOY.....*Accounting Clerk IV*
MYRNA L. NOWELL.....*Accounting Clerk I*
HELEN C. SHINN.....*Accounting Clerk I*
LUNELLE YEARGAN.....*Accounting Clerk II*

PUBLICITY & PUBLICATIONS

BLACKBURN W. JOHNSON.....*Public Information Officer III*
M. PAULINE DeCOSTA.....*Information & Editorial Assistant*
ERMINE B. HAMPTON.....*Stenographer Clerk II*
JOSEPH A. HUNTER.....*Clerk II*
BETTYE T. ROGERS.....*Clerk I*

INSPECTION

E. H. COOPER.....*Tax Auditor III*
LINDSEY ENNIS.....*Feed, Fertilizer & Insecticide Inspector I*
CLYDE A. JACKSON.....*Feed, Fertilizer & Insecticide Inspector II*
HARVEY C. McPHAIL.....*Feed, Fertilizer & Insecticide Inspector I*

MARKETS

JOHN A. WINFIELD.....*Director Agricultural Marketing*
DOROTHY L. BAILEY.....*Stenographer Clerk II*
JO ANN C. BELL.....*Stenographer Clerk II*
WILBUR S. BRANNAN.....*Marketing Specialist II*
GILBERT CLARK.....*Marketing Specialist III*
GRADY COOPER, JR.....*Marketing Specialist III*
J. B. COTNER.....*Marketing Specialist III*
JOHN H. CYRUS.....*Marketing Specialist II*
JAY P. DAVIS.....*Marketing Specialist IV*
LOUISE T. DUNN.....*Stenographer Clerk III*
OLLIE W. FAISON.....*Marketing Specialist IV*
JESSE R. FERRELL.....*Marketing Specialist II*
JEAN I. FORD.....*Stenographer Clerk II*
CLEO M. GAULT.....*Laboratory Technician I*

GLADYS J. GOOCH.....	Stenographer Clerk II
JOE B. GOURLAY.....	Marketing Specialist III
THOMAS E. GREEN, SR.....	Marketing Specialist II
JOHN W. HAMBY, JR.....	Marketing Specialist II
WENDELL P. HEDRICK.....	Marketing Specialist IV
VERNON W. HILL.....	Marketing Specialist III
RUBY M. HINSON.....	Stenographer Clerk III
LEON HOLLAND.....	Marketing Specialist I
JULIUS P. JENRETTE.....	Marketing Specialist III
ALBERT B. JOHNSON.....	Marketing Specialist II
FRED P. JOHNSON.....	Marketing Specialist IV
BETTY LOU JONES.....	Stenographer Clerk II
RALPH B. KELLY.....	Marketing Specialist IV
ETHEL Y. KIKER.....	Marketing Specialist II
HAZEL M. MADDREY.....	Accounting Clerk I
PAULINE M. MANEY.....	Typist Clerk I
HUGH B. MARTIN.....	Marketing Specialist III
CANDLER C. MILLER.....	Marketing Specialist III
HOBART W. MYRICK.....	Marketing Specialist III
MARY L. NORMAN.....	Stenographer Clerk II
MARY M. PATRICK.....	Stenographer Clerk III
H. D. QUESSENBERRY.....	Marketing Specialist IV
EVELYN R. RAMEY.....	Stenographer Clerk II
MILDRED S. RAWLS.....	Laboratory Technician I
DOROTHY Y. REAVES.....	Stenographer Clerk III
B. S. RICH.....	Marketing Specialist IV
CARSON W. SHEFFIELD.....	Marketing Specialist IV
HORACE A. SMITH.....	Marketing Specialist I
ANNE B. STODDART.....	Accounting Clerk I
CURTIS F. TARLETON.....	Marketing Specialist IV
CARL H. TOWER.....	Marketing Specialist III
GEORGE H. TURNER, JR.....	Marketing Specialist II
DEWEY C. WAYNE.....	Marketing Specialist IV
JAMES A. WILLIAMS.....	Marketing Specialist I
EARL M. YANDLE, JR.....	Marketing Specialist I

CREDIT UNION

D. R. GRAHAM.....	Credit Union Administrator
A. S. BYNUM.....	Fiscal Examiner II
MYRTICE B. WILDER.....	Stenographer Clerk II
HOWARD L. PIJAHN.....	Fiscal Examiner II

DAIRY

C. W. PEGRAM.....	Director of Dairy Service
LAFAYETTE H. BOYKIN, JR.....	Dairy Specialist II
ELMO H. HOLLOMON.....	Dairy Specialist II
PAUL R. JORDAN, JR.....	Bacteriologist
W. L. MCLEOD.....	Dairy Specialist II
ROBERT L. MERRITT.....	Laboratory Assistant
FRANCIS PATTERSON.....	Dairy Specialist II
MARY M. WEATHERS.....	Stenographer Clerk II
GILES M. WILLIAMS.....	Dairy Specialist II
MARY SUE P. WILLIAMS.....	Laboratory Technician II

ENTOMOLOGY

C. H. BRANNON.....	State Entomologist
JAMES F. GREENE.....	Entomologist I
J. A. HARRIS.....	Entomologist II
ELLISON C. NELSON, JR.....	Entomologist I
PAULINE P. NEWSOM.....	Stenographer Clerk II
D. L. WRAY.....	Entomologist II

SEED LABORATORY

WILLARD H. DARST.....	<i>Director of Seed Testing</i>
MAGDALENE G. BRUMMITT.....	<i>Seed Analyst III</i>
WALTER E. BURGISS.....	<i>Seed Specialist</i>
MAHLON B. DICKENS.....	<i>Seed Specialist</i>
STELLA W. ETHEREDGE.....	<i>Seed Analyst II</i>
JOAN M. GODWIN.....	<i>Stenographer Clerk I</i>
FRANCES HIPPERT.....	<i>Seed Analyst II</i>
BETTIE B. HUTCHINSON.....	<i>Seed Analyst I</i>
MURPHY G. MCKENZIE, JR.....	<i>Seed Specialist</i>
KENNETH M. MINTZ.....	<i>Seed Specialist</i>
EVELYN J. B. MURDOCH.....	<i>Seed Analyst I</i>
EVALDS SMITS.....	<i>Seed Analyst II</i>
JOE N. TATE, JR.....	<i>Seed Specialist</i>
MILDRED W. THOMAS.....	<i>Seed Analyst II</i>

ANALYTICAL

E. W. CONSTABLE.....	<i>State Chemist</i>
L. V. AMBURGEY.....	<i>Microanalyst</i>
HENRY W. BARNES, JR.....	<i>Chemist II</i>
ELIZABETH F. BARTHOLOMEW.....	<i>Chemist I</i>
SAMUEL C. BOYD.....	<i>Laboratory Assistant</i>
Z. B. BRADFORD.....	<i>Chemist III</i>
BURNEY A. BRITT.....	<i>Chemist II</i>
DAVID E. BUFFALOE.....	<i>Chemist III</i>
MARGARET B. CARTER.....	<i>Chemist II</i>
JAMES A. CHAPMAN.....	<i>Laboratory Assistant</i>
DOROTHY M. DAVIS.....	<i>Stenographer Clerk II</i>
J. WHITT DAVIS.....	<i>Feed, Fertilizer & Insecticide Inspector I</i>
JOHN J. FILICKY.....	<i>Chemist II</i>
EVELYN A. FREEMAN.....	<i>Stenographer Clerk I</i>
CHARLES H. GODWIN, JR.....	<i>Food, Drug & Cosmetic Inspector</i>
HEBER B. HATCH.....	<i>Typist Clerk III</i>
SAMUEL H. HINTON.....	<i>Laboratory Assistant</i>
EUGENE T. HORD, JR.....	<i>Chemist II</i>
VELVA E. HUDSON.....	<i>Typist Clerk III</i>
JESSE G. JERNIGAN.....	<i>Chemist II</i>
DELWIN P. JOHNSON.....	<i>Chemist II</i>
H. D. MATHESON.....	<i>Chemist II</i>
W. P. MATTHEWS.....	<i>Chemist III</i>
HARRY A. MILLER.....	<i>Assistant State Chemist</i>
WILLIAM A. MORGAN.....	<i>Laboratory Assistant</i>
L. M. NIXON.....	<i>Chemist IV</i>
FRED P. NOOE.....	<i>Food, Drug & Cosmetic Inspector</i>
H. F. PICKERING.....	<i>Chemist III</i>
J. S. PITTARD.....	<i>Chemist III</i>
ELIZABETH L. POWELL.....	<i>Stenographer Clerk II</i>
L. B. RHODES.....	<i>Food Chemist</i>
BOB S. ROBERSON.....	<i>Chemist I</i>
CLYDE W. ROBERTS.....	<i>Food, Drug & Cosmetic Inspector</i>
WILLIAM SYLVER, JR.....	<i>Laboratory Assistant</i>
ROBERT T. TEAGUE, JR.....	<i>Chemist II</i>
MURIEL M. WEATHERS.....	<i>Chemist I</i>
VERNON A. WILLIAMS.....	<i>Laboratory Assistant</i>
HAZEL L. WILLIS.....	<i>Stenographer Clerk III</i>

CROP STATISTICS

JOHN T. RICHARDSON.....	<i>Administrative Officer</i>
RAYMOND R. ALFORD, JR.....	<i>Duplicating Machine Operator I</i>

FRANCES D. CHANDLER.....	Research Assistant
SARAH F. DRAKE.....	Research Assistant
MARTHA F. EARLY.....	Research Assistant
JEAN D. FRAZIER.....	Research Assistant
WILLIAM C. HINSON, JR.....	Junior Statistician
SALLIE H. JORDAN.....	Research Assistant
PEARL K. JOYNER.....	Vari-Type Operator II
WILLIAM E. KIBLER.....	Analytical Statistician GS7
HELEN E. KORNEGAY.....	Research Assistant
ROLAND C. MULLEN.....	Duplicating Machine Operator II
JANIE H. MURPH.....	Research Assistant
FRANCIS M. NINE, JR.....	Duplicating Machine Operator II
OLAF WAKEFIELD.....	Senior Statistician
ROSA M. WREDE.....	Research Assistant

SOIL TESTING

JAMES W. FITTS.....	Director of Soil Testing
JOANNE S. BOERNER.....	Stenographer III
MILDRED S. COMBS.....	Typist Clerk I
WINIFRED H. CRANOR.....	Chemist I
VERA A. CULLER.....	Chemist I
JOSEPH E. DOUGLAS.....	Laboratory Assistant
LUCY D. ELMORE.....	Chemist II
YVONNE M. FINCH.....	Typist Clerk I
RUTH S. GARDNER.....	Chemist I
ARTHUR GILES.....	Laboratory Assistant
ESTELLE A. GRANT.....	Stenographer Clerk II
NANCY ANN HOUSE.....	Stenographer Clerk I
MARY W. MATHERS.....	Chemist I
GERALD D. MCCART.....	Agronomist I
ADOLF MEHLICH.....	Assistant Director
MARGARET E. STANCIL.....	Typist Clerk II
ALICE L. WALL.....	Typist Clerk I
CHARLES D. WELCH.....	Agronomist II

VETERINARY

HAL JUDD ROLLINS.....	State Veterinarian
JOSEPHINE A. ALLEN.....	Stenographer Clerk III
WILLIAM A. ANDREW.....	Poultry Specialist I
JOHN D. BAKER.....	Veterinarian II
W. R. BAYNES.....	Veterinarian III
SAMUEL O. BENSON.....	Veterinarian II
G. I. BULLOCK.....	Poultry Specialist II
JULIUS B. CASHION.....	Poultry Specialist I
JESSE J. CAUSBY.....	Poultry Specialist II
KENNETH G. CHURCH.....	Poultry Specialist I
JAMES H. CLEGG.....	Poultry Specialist I
WILLIAM W. CLEMENTS.....	Veterinarian II
HENRY B. COLLINS.....	Livestock Inspector
DONALD E. COOPERRIDER.....	Veterinarian IV
EUGENE C. COUCH.....	Poultry Specialist I
W. J. ELKINS.....	Poultry Specialist I
L. J. FOURIE.....	Poultry Specialist III
JAMES A. FRAZIER.....	Poultry Specialist I
GEORGE D. FULLER.....	Livestock Inspector
L. M. GREENE.....	Veterinarian III
FRANK S. HALL.....	Clerk I
FRANK HOWARD, JR.....	Laboratory Assistant
G. W. IVEY.....	Poultry Specialist II
R. RUSSELL JETER.....	Veterinarian II

ANNIE L. JUSTICE.....	Laboratory Technician I
JAMES D. KELLY.....	Poultry Specialist I
FRED D. LONG.....	Poultry Specialist I
N. P. McDUFFIE.....	Poultry Specialist I
SUE F. MORGAN.....	Stenographer Clerk II
PETER S. PENLAND.....	Poultry Specialist I
BETSY P. PENNY.....	Stenographer Clerk II
VERLIN E. REESE.....	Poultry Specialist I
JAMES U. RICHARDSON.....	Laboratory Assistant
PHIL R. SANDIGE.....	Poultry Specialist I
ARTHUR L. SHEALEY.....	Veterinarian II
BARBARA H. WEILER.....	Laboratory Technician II
THOMAS L. WELLBORN.....	Poultry Specialist I
JOHN WILLIAMS, JR.....	Laboratory Assistant
JOHN R. WOODY.....	Poultry Specialist I
AUBURN L. WRIGHT.....	Poultry Specialist I

TEST FARMS

CECIL D. THOMAS.....	Director Test Farms
THOMAS E. NICHOLS, JR.....	Administrative Assistant
NANCY C. WATLINGTON.....	Stenographer Clerk II
ELWOOD A. ALLEN.....	Senior Herdsman
HERBERT W. ALLEN.....	Farm Foreman II
LILLIAN A. BISHOP.....	Stenographer Clerk I
FENNER B. HARRIS.....	Herdsman Tidewater Test Farm
J. L. REA, JR.....	Test Farm Superintendent
CLIFTON M. BLACKWELL.....	Farm Foreman II
J. M. CARR.....	Test Farm Superintendent
JOYCE H. DIXON.....	Stenographer Clerk I
ELIZABETH FLOYD.....	Stenographer Clerk II
CHESTER KEARNEY.....	Feed and Farm Laborer
WARREN H. BAILEY.....	Test Farm Superintendent
HANNAH B. GOFF.....	Stenographer Clerk I
MELVIN R. THOMAS.....	Farm Foreman II
RANDOLPH WHITLEY.....	Herdsman
JOSEPH L. BOONE.....	Poultryman
RUFUS CURTIS.....	Dairyman
JAMES R. EDWARDS.....	Dairy Research Supervisor
BERNICE H. HARRELL.....	Stenographer Clerk II
GARFIELD HARRIS.....	Farm Foreman II
WILLIAM C. HOLDER.....	Dairyman
MURRAY R. WHISENHUNT.....	Test Farm Superintendent
GORDON D. SHEETS.....	Farm Foreman II
ANNA LEE SHEPHERD.....	Stenographer Clerk I
DAN LAFAYETTE TAYLOR.....	Herdsman
DANA F. TUGMAN.....	Test Farm Superintendent
ERNEST W. ENGLISH.....	Poultryman
JACOB B. MATTHEWS.....	Dairyman
THILBERT A. SUGGS.....	Farm Foreman II
JESSE W. SUMNER.....	Test Farm Superintendent
B. L. WILLIAMS.....	Stenographer Clerk II
VESTER N. BAIRD.....	Farm Foreman II
J. W. HENDRICKS.....	Test Farm Superintendent
ROSE B. INGRAM.....	Stenographer Clerk II
DWIGHT C. AUSTIN.....	Farm Foreman II
CLYDE Z. McSWAIN, JR.....	Test Farm Superintendent
BETSEY M. THOMPSON.....	Typist Clerk I

WEIGHTS & MEASURES

C. D. BAUCOM.....	Superintendent Weights & Measures Director Gasoline & Oil
MARY A. BRITT.....	Stenographer Clerk II

LATTA W. COOK.....	<i>Liquid Fertilizer Specialist</i>
JOSEPH P. CRAWFORD.....	<i>Weights & Measures Inspector</i>
CHARLES E. DOLAN.....	<i>Heavy Duty Scale Inspector</i>
ARNOLD B. GOETZE.....	<i>Weights & Measures Inspector</i>
DOROTHY GOODSON.....	<i>Stenographer Clerk II</i>
MARION L. KINLAW, JR.....	<i>Weights & Measures Inspector</i>
GROVER R. KISER.....	<i>Weights & Measures Inspector</i>
T. WAVELY LUCAS.....	<i>Truck Driver</i>
RUFUS A. MALLOY.....	<i>Weights & Measures Inspector</i>
JOHN I. MOORE.....	<i>Weights & Measures Inspector</i> <i>Supervisor</i>
WILLIAM SHOOK.....	<i>Heavy Duty Scale Inspector</i>
JAMES M. VESTAL, JR.....	<i>Weights & Measures Inspector</i>
JAMES E. WILLIAMS.....	<i>Truck Driver</i>
S. M. WOOLFOLK.....	<i>Weights & Measures Inspector</i>

STATE MUSEUM

H. T. DAVIS.....	<i>Museum Director</i>
LUDIE V. ASHE.....	<i>Maid</i>
CLARE S. JOHNSON.....	<i>Clerk I</i>
JULIAN W. JOHNSON.....	<i>Museum Exhibits Designer</i>
MARY KNIGHT.....	<i>Stenographer Clerk II</i>
F. B. MEACHAM.....	<i>Zoologist</i>
OWEN WOODS.....	<i>Janitor-Messenger</i>

HOG CHOLERA WORK

CHARLES R. BORDER.....	<i>Veterinarian III</i>
RALPH HAMILTON.....	<i>Veterinarian I</i>

CUSTODIAL

ROBERT HARRIS.....	<i>Stock Clerk I</i>
WORTH JEFFRIES.....	<i>Stock Clerk I</i>

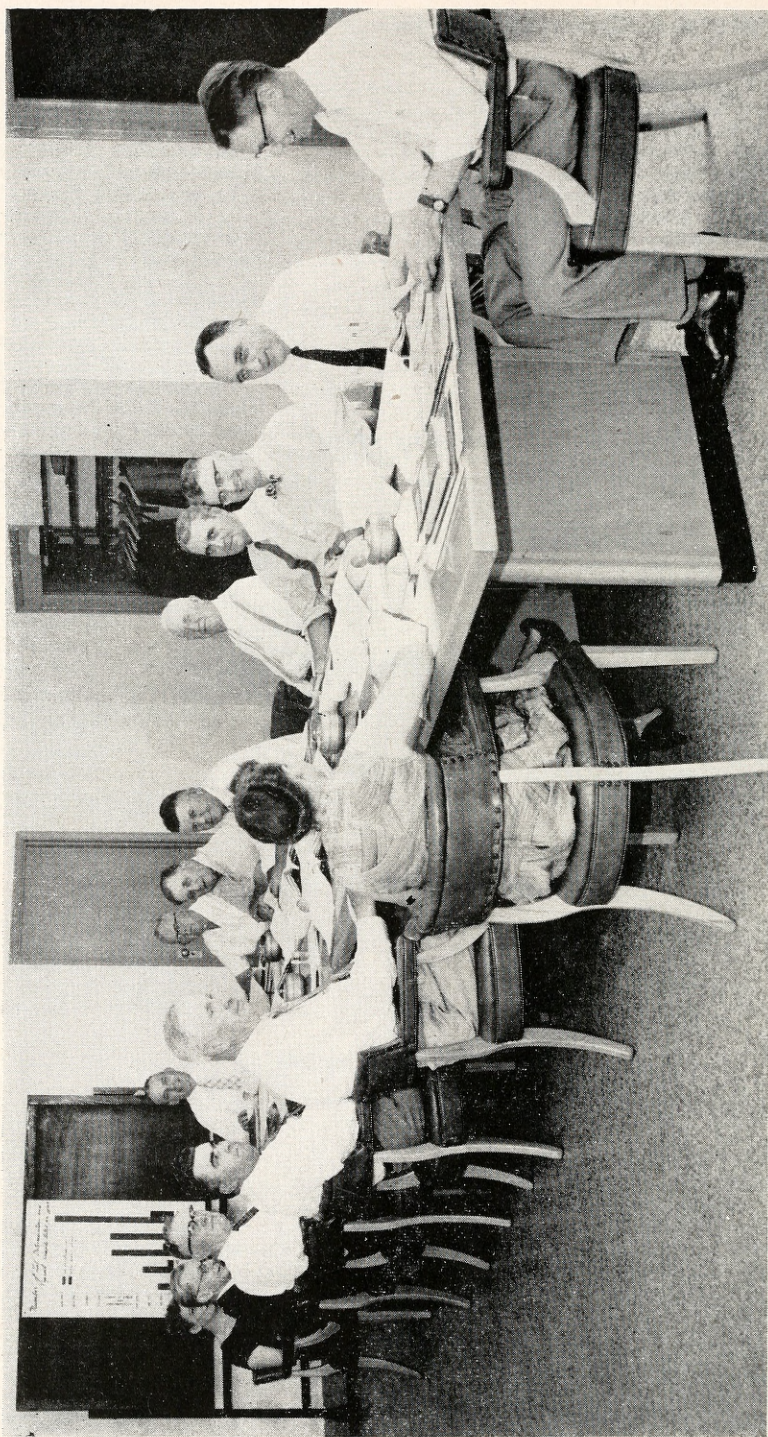
STATE WAREHOUSE SYSTEM

A. B. FAIRLEY.....	<i>Warehouse System Superintendent</i>
ELOUISE S. BYRD.....	<i>Stenographer Clerk II</i>
HAZEL K. COBB.....	<i>Clerk II</i>
WAYNE B. FERRELL.....	<i>Warehouse Examiner</i>
HALLIE K. MORROW.....	<i>Stenographer Clerk II</i>

GASOLINE & OIL INSPECTION

T. W. ANDERSON.....	<i>Gasoline & Oil Inspector</i>
GILBERT L. ARTHUR.....	<i>Chemist I</i>
CAREY M. ASHLEY.....	<i>Chemist I</i>
MILTON BAREFOOT.....	<i>Gasoline & Oil Inspector</i>
BOYD LEE BARNETTE.....	<i>Chemist I</i>
I. L. BLAYLOCK.....	<i>Gasoline & Oil Inspector</i>
MALVER L. BOYETTE.....	<i>Gasoline & Oil Inspector</i>
KATHLEEN C. BRAFFORD.....	<i>Chemist I</i>
KENNETH E. BROWN.....	<i>Calibrator</i>
JOHN A. BYNUM.....	<i>Gasoline & Oil Inspector</i>
WILLIAM L. CARPENTER.....	<i>Chemist II</i>
JACK C. CONNOLLY, II.....	<i>Chemist I</i>
WILLIAM T. CRAWFORD.....	<i>Gasoline & Oil Inspector</i>
JOSEPH DENTON.....	<i>Gasoline & Oil Inspector</i>
LEMUEL S. DOWDY.....	<i>Calibrator</i>
OTTO DUNCAN.....	<i>Gasoline & Oil Inspector</i>

PAUL H. ETHERIDGE.....	Chemist I
J. A. GALLOWAY.....	Gasoline & Oil Inspector
JOSEPH E. GILLESPIE.....	Chemist I
ELLIOT HARRISON.....	Laboratory Assistant
H. H. HATCHER.....	Gasoline & Oil Inspector
HUGH F. HAYES.....	Chemist II
HORACE E. HERMAN.....	Calibrator
IRA G. HOLLOWAY.....	Gasoline & Oil Inspector
ALTON R. HOYLE.....	Gasoline & Oil Inspector
EDWIN H. HUTCHINS.....	Chemist I
HERMAN L. JONES.....	Gasoline & Oil Inspector
ROBERT H. MCARVER.....	Gasoline & Oil Inspector
ARCHIE D. MCGIRT, JR.....	Chemist I
ROY A. MCKEITHAN.....	Calibrator
VIRGINIA B. MOORE.....	Stenographer Clerk II
FRANCIS W. OAKES.....	Gasoline & Oil Inspector
W. T. O'BRIANT.....	Gasoline & Oil Inspector
DOUGLAS M. PAIT.....	Gasoline & Oil Inspector
NELLIE A. PARRISH.....	Stenographer Clerk I
HARVEY R. PEARMAN, JR.....	Chemist II
WILLIAM H. PERRY.....	Calibrator
PARLEY B. RASMUSSEN, JR.....	Chemist II
JAMES R. RIVERS.....	Gasoline & Oil Inspector
DAVID J. SECOR.....	Chemical Engineer
H. L. SHANKLE.....	Chemist IV
J. T. SHAW.....	Chemist II
HARRY W. SHELTON.....	Chemist I
RAY D. SIGMON.....	Gasoline & Oil Inspector
KOY S. SMITH.....	Gasoline & Oil Inspector
NORA NEWTON STELL.....	Stenographer Clerk I
NINA G. SUMNER.....	Chemist I
RALPH G. THORNBURG.....	Chemist II
THOMAS G. TROGDON.....	Chemist II
LEON E. VAN BRUNT.....	Calibrator



The State Board of Agriculture, meeting for the first time in the new Board Room of the Agriculture Building Annex, gives careful scrutiny to the Department's budget requests for the 1955-1957 biennium. This hard-working Board spent the equivalent of two full weeks in meetings during the past two years, and its members have devoted much additional time and energy to test farm business.

BIENNIAL REPORT

OF THE

NORTH CAROLINA DEPARTMENT OF AGRICULTURE

By L. Y. BALLENTINE

Commissioner of Agriculture

Two age-old recurring farm problems—drought and economic uncertainty—have occupied the foreground of the agricultural picture during the period covered by this report.

Generally dry weather has, in fact, prevailed during the past four growing seasons, but in the last two years drought has reached disaster proportions in some areas of the state.

Economic recession caught the farmer in a cost-price squeeze. While his production costs continued at a high level, the prices he received for many of his products declined. Adding to his uncertainty for the future has been the enactment of federal legislation to substitute flexible price supports for the rigid, 90-percent-of-parity on most controlled crops.

The State Department of Agriculture has taken what steps it could to mitigate these and other special problems. Its part in the emergency drought-relief program is reported elsewhere in this section. It has vigorously opposed flexible price supports at every opportunity. It will continue to voice its opposition to this measure and to any other proposals for undermining the program which has given some stability to our agricultural economy.

In times like these the Department's normal, everyday functions take on added importance. With production costs cutting more and more into farm income, enforcement of laws and regulations having to do with full measure, minimum standards of quality and true labeling means proportionately more to the farmer.

The Department's free soil-testing service makes his fertilizer dollar go farther and increases his crop yields. Its farm marketing program helps him to get the best possible price for his products. Its test farms in various sections of the state provide facilities for research applicable to farming in the area where each is located; and serve to demonstrate good farm management and cultural techniques for the local farmers.

These are but a few examples. More detailed discussion of these and other functions of the Department will be found in reports of the various divisions, each of which is assigned a chapter in this book.

BUILDING FOR SERVICE

New facilities constructed during this biennium mark a great forward step for the Department, and will add immeasurably to the effectiveness of its work.

Through the years there has been a steady increase in the Department's responsibilities and activities. Yet in more than a quarter of a century very little was added in the way of office and laboratory space. This resulted in more and more crowding of personnel and equipment into quarters which became increasingly inadequate for operation at maximum efficiency.

A five-story Annex to the Agriculture Building was completed late in this biennium. As this report is written, moving into the new quarters is well under way; and offices vacated are being renovated or remodeled for expansion of those divisions remaining in the old main building.

Also completed late in this biennium were the combination calibrating station and gasoline-and-oil laboratory for the work of the Weights and Measures Division; and a large-animal diagnostic laboratory for use by the Veterinary Division. Both of these buildings are located on Western Boulevard in Raleigh.

New buildings and improvements at the fairgrounds not only enhance the effectiveness of the State Fair as an annual event, but provide long-needed facilities for agricultural and other meetings throughout the year.

LAWS AND REGULATIONS

Laws and regulations have added some new responsibilities to the Department of Agriculture in this biennium. Many of them are discussed in reports of the individual divisions which administer them. Others, however, are mentioned here because they devolve more directly upon the office of the Commissioner.

In 1953 the General Assembly enacted a law creating the North Carolina Milk Commission. This law stipulates that the Commissioner of Agriculture shall serve as an ex-officio member, and instructs him to provide "as far as practical without additional compensation such technical and other services as may be

necessary to carry out the provisions of this Act." Members appointed by the Governor took the oath of office on August 11, 1953, and on that day the newly created Commission began its work.

A report of the Commission's accomplishments has no place here. But it is pertinent for me to report that I have devoted a great deal of time to meetings and hearings held by the Commission, and that the dairy section of the Department's Division of Markets has, from the very beginning, assisted and cooperated in the Milk Commission's work.

Another law enacted in 1953 has to do with the licensing and regulation of rendering plants and rendering operations. Authority to adopt the regulations is given to the Commissioner of Agriculture, after consulting the rendering-plant inspection committee. Under the law this committee is composed of three members, one each designated by the State Health Officer and the Commissioner of Agriculture and the third designated by the Director of the North Carolina Division of the Southeastern Renderers Association. Dr. H. J. Rollins, State Veterinarian, serves as the Department of Agriculture representative on this committee.

Drawing up regulations which would be safe and reasonable and carry out the intent of the law has required considerable study and field work on the part of the inspection committee. This was completed just as the biennium drew to a close, and the regulations were promulgated on July 2, 1954.

A law which permits growers to assess themselves for the purpose of promoting the use and sale of their products was amended in 1953 to authorize the Department of Agriculture to collect such assessments from buyers of the products, if the growers' association elects to have collections made in this way. Since October 1, 1953, the Department has been making such collections for the North Carolina Peanut Growers' Association. This association was certified by the State Board of Agriculture as the authorized agency representing peanut growers to conduct a referendum on the question of an assessment. On August 29, 1953, the growers voted, by an overwhelming majority, in favor of an assessment of one cent per hundred pounds of peanuts sold.

Firms and individuals engaged in buying farmers' stock peanuts in North Carolina deduct the assessment from the grower's

payment and turn it over to the Department of Agriculture, which, in turn, remits the funds so collected to the Peanut Growers' Association.

This Department also makes collections under the law popularly known as "Nickels for Know-How." This law, enacted in 1951, authorizes the holding of referenda among farmers of the state on a proposal to assess themselves five cents a ton on sales of commercial feeds and fertilizers.

The first referendum, authorized by the State Board of Agriculture as provided by law, was held on November 3, 1951, and the proposal won by much more than the required two-thirds majority. Collections were started on January 1, 1952. During this biennium (July 1, 1952, to June 30, 1954) these have amounted to \$285,032.98. These collections are turned over to the North Carolina Agricultural Foundation, Inc., and are used to supplement existing funds for agricultural research and dissemination of research information.

Under the law this matter must be re-submitted to eligible voters at three-year intervals. In April, 1954, the North Carolina Agricultural Foundation, Inc., North Carolina Farm Bureau Federation and North Carolina State Grange petitioned the Board of Agriculture for authority to hold another "Nickels" referendum. This petition was granted and these three agencies, designated by the law to do so, plan to hold the referendum on October 15, 1954.

A regulation adopted by the Board of Agriculture in June, 1953, will add a major undertaking to the Department's activities. This regulation, which became effective July 1, 1954, requires each fertilizer manufacturer to report to the Commissioner of Agriculture the tonnage of each grade of fertilizer shipped to each destination in North Carolina.

This measure was adopted at the request of the North Carolina Experiment Station to aid technical workers in research, and permit them to make fertilizer recommendations based on knowledge of plant food applications in various sections of the state.

Alternative methods of reporting are provided in the regulations. Manufacturers may send a copy of the invoice or order (minus price quotation) on each shipment of fertilizer in or into the state; or they may submit summary reports of shipments by grades and by destinations at six-month intervals. Coord-

inating and summarizing this mass of data into a form suitable for use will require the services of a statistician and a statistical clerk. This additional help has been included in the Department's budget request.

During this biennium two emergency regulations were issued by the Commissioner under authority of a gubernatorial proclamation of August 1, 1952. Both were essential in the control and eradication of vesicular exanthema, a virus disease which threatened the state's swine industry.

The first was promulgated on August 1, 1952, to prevent entry of diseased or exposed hogs into the state. At that time North Carolina was free of the disease. In April, 1953, after several outbreaks of vesicular exanthema in the state had been traced to the feeding of raw garbage, emergency regulations were issued to quarantine all garbage-fed swine and prevent their movement to livestock markets. Such swine could be moved only under a permit from the State Veterinarian after inspection had been made to determine that the animals were healthy and had been fed on garbage which had been cooked by approved methods. The General Assembly had, two days earlier, enacted the Garbage Feeding Law, but this did not become effective until 90 days after its ratification. These stop-gap measures were necessary to prevent vesicular exanthema from sweeping the state, which would have resulted in closing down our hog-buying markets, halting the movement of North Carolina swine to other states, and untold financial loss to our farmers.

SUPERVISION OF FAIRS

The value of local fairs has long been recognized. Their stimulation of competitive spirit and their educational worth are obvious. Unfortunately, however, the fair's deservedly good name was at times exploited by the unscrupulous to attract the solid citizens of a community to events which were mere entertainment, and often the worst type of entertainment.

With a view to fostering bona fide agricultural and industrial expositions, the 1949 General Assembly enacted a law designed to prevent the word "fair" from coming into disrepute. Advertising as a "fair" any traveling show, carnival, circus or the like is forbidden in the law.

To further carry out this purpose, the law provided for licensing and supervision by the Commissioner of Agriculture of

all local fairs in the state, under regulations approved by the State Board of Agriculture.

In 1952 licenses were issued to 67 fairs in 52 counties of the state, and all were inspected by representatives of the Department of Agriculture. In 1953 the number of fairs licensed increased to 77 in 58 counties, and 74 inspections were made. As a whole, there has been excellent compliance with the law and regulations. Only one or two fairs inspected failed to meet the minimum requirements.

EMERGENCY HAY PROGRAM

When the prolonged drought of 1953 caused pastures and feed crops to fail in some areas of the state, livestock farmers were faced with loss of their foundation herds. Agricultural agencies of the state cooperated to assess the need and back Governor Umstead in his requests for federal funds to defray half the transportation costs of hay shipments to the drought-stricken areas.

The Department of Agriculture, of course, took an active part in the preliminary phases of this program, and helped in mapping out procedures for distributing the funds granted. And the Department was made responsible for all disbursements under the program.

The program was launched in early November and terminated on April 15 of the following year. In this period more than 15,000 tons of the emergency hay came into the state, for which freight reimbursements totaled \$94,821. During part of this time freight rates on the hay were reduced fifty per cent by voluntary action of the railroads, and this meant an additional saving of around \$70,000 on transportation.

Assistant Commissioner John L. Reitzel, who supervised the Department's participation in this program, estimates that more than 10,000 head of livestock were fed, wholly or partially, on the emergency hay.

PERSONNEL CHANGES

During this biennium the Department lost, by retirement, two of its oldest and most valued employees. Miss Susie D. Allen, supervising seed analyst in the Seed Testing Division, retired in the summer of 1953. She had held this position 38 years and

made a vital contribution toward raising the Seed Laboratory to the eminence it now enjoys. With her retirement the laboratory would have suffered irreparably had it not been able to obtain the services of Miss Magdalene Brummitt, who had trained under Miss Allen and worked with her for a number of years. Miss Brummitt has also had three years of valuable experience in federal seed laboratories.

Frank Parker, who directed the Department's statistical work for 37 years, retired in the spring of 1953. In the dual capacity of State Statistician for the Bureau of Agricultural Economics of USDA and director of the Statistics Division of the North Carolina Department of Agriculture, Mr. Parker had through the years expanded this service from a one-man office to an organization employing 35 full-time workers, a number of other part-time employees and a small army of volunteer crop and livestock reporters. He developed statistical reports covering nearly every phase of the state's agriculture, and initiated the annual County Farm Census. He traveled the state and knew the farming pattern in every section. Shortly before his retirement he was awarded a superior service citation by the U. S. Department of Agriculture.

The Department was most fortunate in the appointment of Henry L. Rasor to take over Mr. Parker's work. Mr. Rasor has held a succession of responsible assignments in the Crop Reporting Service for 26 years. He was agricultural statistician in charge of the Louisiana office at the time of his transfer to North Carolina.

In August, 1953, A. Hugh Harris, who had been Assistant Commissioner of Agriculture since 1949, resigned to look after his farming and business interests. Mr. Harris had been "drafted" to his position in the Department and labored zealously here at the expense of his personal affairs. When these could no longer be denied his attention, his resignation was reluctantly accepted.

A combination of fortunate circumstances brought John L. Reitzel to the Department to fill this post. Mr. Reitzel's training and experience were such as to eminently qualify him for the job. A native of Iredell County, he holds a bachelor of science degree from North Carolina State College, he has taught vocational agriculture, served as assistant county agent in Cleveland and Haywood Counties, and as county agent in Wake County.

His release from active military service made him available very shortly after Mr. Harris' resignation, and he assumed his duties with the Department late in August of 1953.

BOARD OF AGRICULTURE

No report of this Department would be complete without recognition of the important services of the State Board of Agriculture. This policy-making and regulatory body is the guiding hand back of all the Department accomplishes.

All busy farmers, the members of this Board give unstintingly of their time and efforts to the responsibilities of their office. In addition to the time spent in meetings of the whole Board, members work long and tirelessly on committees appointed to study and make recommendations on complicated matters which the Board must review. Particularly has this been true during the period covered by this report, when relocation of a test farm has involved all the investigations requisite to buying and selling large tracts of land.

Many intricate or controversial regulatory matters have come before the Board also in this two-year period, and to all of these the Board has given careful, objective consideration and wise and impartial decision.

Following is a brief listing of the meetings and actions of the Board during this biennium.

HIGHLIGHTS OF BOARD MEETINGS

1952-1954 Biennium

*Aug. 14, 1952
Raleigh*

Budget

Present: Glenn G. Gilmore, Claude T. Hall, J. Muse McCotter, Charles F. Phillips, Miss Ethel Parker, O. J. Holler, A. B. Slagle.

Reviewed Department Budget requests for 1953-55 biennium. Suggested revisions. Appointed Committee to review and revise budget before its presentation to Advisory Budget Commission in September.

*Sept. 22, 1952
Raleigh*

Budget

Present: Glenn G. Gilmore, Hoyle C. Griffin, O. J. Holler, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.

Attended hearing on Budget before Advisory Budget Commission.

Test Farm Land Rocky Mount

Approved terms of lease of land from Upper Coastal Plain Experiment Station to J. L. Wiggins for construction of dam. Authorized presentation of lease to Council of State and recommended it be granted.

Tobacco-Curer Fees

Adopted order and findings of fact in matter of reducing charges for seals of approval, in accordance with motion passed on June 17, 1952.

Feed Standards Protein (12% Dairy)

Amended chemical standards for mixed feed to include a 12 per cent protein dairy feed.

*Oct. 13, 1952
Raleigh*

Tobacco Weight Tolerances

Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, J. Muse McCotter, Charles F. Phillips, A. B. Slagle, J. E. Winslow

Heard report on abuses of tobacco weight tolerances allowed under regulations and authorized the Commissioner to hold a hearing in this matter.

Quitclaim Deed—Old Fairgrounds

Recommended that Council of State authorize execution of quitclaim deed to small strip of land which had been part of the old fairgrounds in Raleigh and to which legal title was defective.

Dairy Regulations

Approved recodification of one section of the Dairy Regulations.

Dept. of Agriculture Exhibit —N. C. State Fair

Heard and discussed plans for an over-all Department of Agriculture exhibit at the State Fair in 1953 and ensuing years.

*Dec. 8, 1952
Raleigh*

New Member

Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, Charles F. Phillips, J. H. Poole, J. E. Winslow, R. V. Knight

Introduction of new member, Mr. R. V. Knight, of Tarboro, appointed to unexpired term of Miss Ethel Parker, who resigned.

Piedmont Test Farm

Authorized Commissioner to take steps to effect transfer of Federal land to State at this Station.

Approved Commissioner's proposal that he ask Dean of Agriculture at North Carolina State College to designate members of his staff to work with Board's committee in locating new Piedmont Test Farm.

Upper Mountain Test Farm

Approved purchase of a commercial garage building and lot adjacent to Upper Mountain Test Farm, Laurel Springs, and requested Budget Bureau to approve transfer of funds for this purpose.

N. C. Markets Authority Lease of Facilities

Considered proposal to renew lease from Johnston County Commissioners for marketing facilities near Smithfield. Authorized Commissioner to investigate and act as he sees fit with reference to renewal.

Secy. & Treas.	Elected John A. Winfield as Secretary-Treasurer of the North Carolina Markets Authority.
Japanese Beetle Quarantine	Amended regulated areas under Japanese Beetle Quarantine—adding three counties and one township in another county.
Vesicular Exanthema	Heard report from Dr. H. J. Rollins, State Veterinarian, on measures taken to prevent entrance into North Carolina of infectious swine virus, vesicular exanthema.
March 11, 1953 Raleigh	Present: Hoyle C. Griffin, Claude T. Hall, O. J. Holler, R. V. Knight, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.
State Fair Audit	State Auditor's report on State Fair for calendar year 1952 presented by Dr. J. S. Dorton, Fair Manager, and accepted by the Board with commendation for the manager and his staff.
State Fair, Appointment of Manager	Rehired Dr. Dorton as State Fair Manager for another year.
State Fair Promotion Director	Passed motion requesting Personnel Department to classify position and set salary for John W. Fox, promotion director.
Insecticides in Fertilizer	Heard recommendations from Experiment Station to add certain insecticides to those already permitted under regulations for admixture with fertilizer. Agreed to call public hearing on this matter at next meeting.
Feed Regulations, Urea and Fibre in Dairy Feeds	On recommendation of Experiment Station, Department of Animal Husbandry, amended regulation to restrict urea in feeds to two per cent of the total mixture. Deferred action on Experiment Station recommendation to change maximum fibre content of dairy feeds from 15 to 13 per cent.
Test Farm Land, Mountain Test Farm	Postponed action on request from Henry Miller to buy strip of land from Mountain Test Farm (3/10 acre).
Test Farm Relocation of Piedmont Station	Approved purchase of three adjoining farms in Rowan County (approximately 1,000 acres) for relocation of Piedmont Test Farm. Requested Council of State to provide funds and permit reimbursement from sale of farm at Statesville.
Apr. 27, 1953 Raleigh	Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, R. V. Knight, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.
Dairy Regulations	Held hearings on proposed changes in dairy regulations (Chapter IV of Regulations.)
Definition of Cream	Definition of (1) single cream, (2) double, or whipping cream, and (3) half and half. (Adopted as proposed.)
Milk solids not fat	Deleted definition of whipping cream from Chapter IX. Changed minimum per cent of milk-solids-not fat, from 8.50 to 8.25, wherever it appears in definitions.
Labeling of Buttermilk	Heard proposal to permit Grade A labeling of buttermilk made from powdered milk, if powder is known to be made from Grade A milk for pasteurization. Voted against proposal.
Address on label of milk containers	Amended regulation to require address of plant where contents pasteurized on all milk bottles.
Diabetic Ice Cream	Adopted regulations for special dietetic ice cream to be sold as "diabetic ice cream," effective through October 31, 1953.

Tobacco Weight Tolerances	Held hearing and amended regulations reducing tobacco weight tolerances allowable for variation due to changes in atmospheric conditions.
State Fair Regulations	Adopted regulations and rental schedules for operation of State Fair Arena.
Mortars	Approved transfer of mortars at front corners of Agriculture Building to Division of State Parks for removal to Fort Macon.
Urea in Feeds	Rescinded change in regulation regarding maximum urea in dairy feed, adopted at meeting on March 11, 1953.
Loans From Warehouse Fund	Approved loans of \$33,000 to W. S. and W. G. Dean, Roanoke Rapids; \$50,000 to Lincoln Bonded Warehouse, Lincolnton, and \$25,000 to House Milling Co., Newton Grove.
Interest Rate on Warehouse Loans	Voted to raise interest rate on warehouse loans from 4 per cent to 5 per cent.
Milling Grade of Corn	Considered telegraphic request from Western Corn Miller's Association that Board established grade standards for a milling grade of corn. Deferred action until Department specialists could confer with USDA officials to see if grade and methods of checking could be established.
<i>June 22, 1953 Raleigh</i>	Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, J. Muse McCotter, Charles F. Phillips, J. H. Poole, J. E. Winslow, George P. Kittrell.
Fertilizer Regulations	Held hearings on changes in fertilizer regulations.
Fertilizer Grade List; High-Analysis Grades	Adopted official fertilizer grade list for 1953-54, including for the first time several grades of higher analysis.
Insecticides in Fertilizer	Added aldrin, dieldrin, heptachlor and toxaphene to list of insecticides permitted to be mixed with fertilizer under certain conditions.
Grade Tonnage Reports	Adopted regulation requiring manufacturers to report shipments of fertilizer in or into the State by grades for each destination.
Bread Standards	Adopted new regulations pertaining to definition and standards for bread.
Crop-Dusting	Held hearing and adopted regulations governing aerial application of pesticides, under new law enacted by the 1953 General Assembly.
Peanut Referendum	Certified North Carolina Peanut Growers Association, Inc., as agency authorized to hold a referendum among peanut growers on the question of levying an assessment for peanut marketing promotion, and approved holding such referendum on August 29, 1953.
Test Farm Land, Statesville	Approved granting highway right-of-way through Piedmont Test Farm, involving 15 acres at \$250 per acre.
Camellia Flower Blight	Added area in Wilson County to Quarantine areas in North Carolina.
<i>Sept. 14, 1953 Raleigh</i>	Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.
Labeling of Buttermilk	Heard request from George Coble and others for permission to use the word "churned" on cultured buttermilk, or definition for churned buttermilk to apply when cultured milk has butter added and undergoes high-speed agitation. Authorized appointment of a committee to draw up a proposed definition of "churned buttermilk" for discussion at a later meeting.

Appointment of Division Head	Approved appointment of Henry L. Rasor as head of Statistics Division, replacing Frank Parker, retired.
Seed Regulations	Held scheduled public hearing on proposed amendments to seed regulations. Amended lists of restricted and prohibited noxious weeds and clarified certain administrative provisions.
Test Farm Land, Oxford	Approved exchange of 18.84 acres from Tobacco Test Farm for a like amount of land offered by City of Oxford. Test farm land needed by city to enlarge its reservoir.
Test Farm Land, New Piedmont Station, Rowan County	Heard report from Director of Test Farms Division that purchase completed and deeds delivered on three tracts of land in Rowan County for new Piedmont Test Farm.
Loan From Warehouse Fund	Approved loan from Warehouse Fund of \$35,000 to Conway Bonded Warehouse, Inc., to be used in construction of new warehouse for storage of cotton and peanuts.
Tobacco Curer Inspection Fees	Amended regulations to set fee of 50 cents for tags to be attached to tobacco curer assemblies, in line with provisions of law enacted by the 1953 Legislature.
<i>Oct. 19, 1953</i> <i>Raleigh</i>	Present: Glenn G. Gilmore, Claude T. Hall, O. J. Holler, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.
Liquid Fertilizer	Held hearing and adopted regulations governing the handling and sale of liquid fertilizers.
Warehouse Loan Application	Received application for loan of \$42,500 from Mount Olive Grain Co., R. B. Williams, President. Asked Warehouse Superintendent to obtain additional information.
<i>Feb. 2, 1954</i> <i>Raleigh</i>	Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, J. Muse McCotter, George P. Kittrell, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.
Warehouse Loan Applications	Gave further consideration to application for loan from Mount Olive Grain Co. Authorized appointment of a committee of specialists to work with applicant in preparing working schedule and financial plan to ensure a profitable operation, and to make recommendations to the Board. Received application from Gurley Milling Co., of Selma, N. C., Inc., for loan of \$150,000 from Warehouse Fund to construct a grain elevator at Selma. Authorized same committee of specialists to work with applicant in the same way as above, and make recommendations to the Board. Approved increasing loan to Conway Bonded Warehouse from \$35,000 to \$45,000, because building costs were higher than anticipated.
Concrete Block Regulations	Heard resolution of North Carolina Concrete Masonry Association, presented by secretary-treasurer, requesting Board to amend regulations to require registration by manufacturers of concrete masonry units, regular inspection of plants, and publication of inspection results. Postponed action until public hearing could be held.
Employee Drivers Liability	Adopted resolution requesting Governor and Council of State to make provisions for insurance coverage of Department employees when driving State-owned cars, as required under the Motor Vehicle Safety and Financial Responsibility Act of 1953.
Buttermilk, Definition	Received proposed new definition of churned cultured buttermilk prepared by committee authorized on September 14, 1953. Took no action.

Buttermilk Labeling, "Churned" Called Misbranding

April 7, 1954
Raleigh

Went on record as being of the opinion that cartons containing cultured milk products and labeled "churned buttermilk" are misbranded under North Carolina dairy laws and regulations.

Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle.

Coastal Plain Test Farm Power Line Conveyed to C. P. & L.

Approved conveying electric light lines and poles at Coastal Plain Test Farm, Willard, to Carolina Power and Light Co., for cash and other considerations.

State Fair Audit

Received from State Fair Manager report on the audit of the North Carolina State Fair for the period January 1, 1953, to December 31, 1953, prepared by Department of State Auditor. Accepted and approved the audit report and adopted motion expressing gratitude and commendation to Fair Manager for his fine work.

State Fair Manager Appointed

Reappointed Dr. J. S. Dorton as manager of North Carolina State Fair for the ensuing year.

"Nickels For Know-How" Referendum

Received petitions from North Carolina Agricultural Foundation, Inc., North Carolina Farm Bureau and North Carolina State Grange for authorization to hold a "Nickels for Know-How" referendum in 1954. Authorized referendum as requested.

"Nickels For Know-How" Report

Heard report from L. L. Ray, Director of Foundation at North Carolina State College, on projects financed by "Nickels for Know-How."

Loans From Warehouse Fund

Approved loan of \$4,000 to Wall Warehouse and Storage Co., of Wadesboro, for construction of facilities to store lespedeza seed and grain.

Heard report on committee authorized February 2, 1954, to work with Mt. Olive Grain Co., Inc., and Gurley Milling Co., of Selma, N. C., Inc. Committee recommended loan of \$55,740 to Mount Olive Grain Co., for construction of facility with 107,000 bushels capacity, and this loan was approved by the Board.

Committee recommended that loan to Gurley be limited to \$135,000 maximum, because total of only \$250,000 now available for lending from Warehouse Fund. Board withheld approval of loan because Gurley concern had not obtained finances for its half of construction costs. Board also agreed that not more than \$100,000 should be put into any one loan.

Concrete Masonry Units

Adopted amendment to strengthen regulations governing registration, inspection and load-bearing strength of concrete masonry units, as requested on February 2, 1954 by North Carolina Concrete Masonry Association.

Admission of Brucellosis Vaccinates to Fairs and Livestock Shows

Heard requests from manager of Winston-Salem Fair that calfhood vaccinated animals showing a titer up to 18 months of age be allowed entry at livestock shows and fairs if they come from certified Bangs' free herds. Postponed action pending hearing.

White-Fringed Beetle Quarantine

Amended areas of quarantine for White-Fringed Beetle.

Test Farm Land for Tobacco Research

Discussed advisability of buying land for tobacco research in areas where land is now rented for this purpose. Requested Department of Agriculture and Experiment Station personnel to confer and make recommendations.

May 4, 1954
Raleigh

Peanut Test
Farm; Ease-
ment for
Power Line

Present: Claude T. Hall, O. J. Holler, George P. Kittrell, Charles F. Phillips, J. H. Poole, J. E. Winslow.

Approved granting easement to Roanoke Electric Service Corporation granting right-of-way through Peanut Test Farm for poles and lines to provide power for the farm.

Test Farm Visit-
ing Committee

Authorized committee from Board to visit test farms to study their appropriation needs for the next biennium.

Brucellosis
Vaccinates,
Admission to
Fairs

Held hearing on proposal of Winston-Salem Fair Manager presented at April 7 meeting. Agreed to make no change in the regulations.

May 26, 1954
Raleigh

Seed Regula-
tions, Noxious
Weeds

Present: Hoyle C. Griffin, Claude T. Hall, O. J. Holler, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.

Added wild mustard to list of restricted noxious weeds, limited to 500 seeds per pound of weed seed.

Fertilizer
Grade List

Adopted official fertilizer grade list for year beginning July 1, 1954.

Coastal Plain
Test Farm
Power Line

Approved conveying additional power lines at Coastal Plains Test Farm to Carolina Power and Light Co.

Statesville
Test Farm

Authorized committee from Board to act for the Board in conducting preliminary negotiations for sale of land from the Statesville Test Farm, and to make recommendations on over-all policies to be followed in selling this farm.

June 22, 1954
Raleigh

Bulk Milk
Dispensers

Present: Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, O. J. Holler, George P. Kittrell, Charles F. Phillips, J. H. Poole, A. B. Slagle, J. E. Winslow.

Held public hearing on proposal to amend regulations to allow sale of milk from refrigerated bulk dispensers in public eating places. Authorized committee representing various interested agencies to draft proposed regulations permitting dispensers under safeguards as to sanitation, trade practices, size of servings, and effective date.

Statesville Test
Farm, Offer for
Tract of Land

Heard report of Statesville Test Farm committee on offer of firm to buy tract of land from Statesville Test Farm to erect factory which will ultimately employ 600 people. Representative of Department of Conservation and Development expressed interest in bringing this business to North Carolina. Board authorized committee to proceed with negotiations.

Swine
Diagnostic
Laboratory

Mr. Kittrell reported interest of Eastern North Carolina swine producers in having a diagnostic laboratory in that area. Authorized a committee to investigate the feasibility of establishing such a laboratory and make recommendations.

Dairy
Regulations,
Babcock Test-
ing

Approved amendment to Dairy regulations to describe in detail procedures for testing milk and cream by the Babcock method.

ACCOUNTS

A. R. POWLEDGE

Chief Auditor

The financial report of the Department
and the various divisions is as follows:

DEPARTMENT OF AGRICULTURE Code 1101

STATEMENT OF DISBURSEMENTS

July 1, 1952-June 30, 1954



A. R. POWLEDGE

SUMMARY BY PURPOSES

	1953-54	1952-53
I. Administration	\$ 39,247.01	\$ 35,949.61
Accounting Office	28,468.42	20,190.60
Publicity & Publications	33,558.22	34,166.73
II. Inspection	50,943.21	77,468.81
III. Markets	289,296.09	266,564.11
IV. Credit Union	22,017.79	21,773.19
V. Dairy	53,580.42	56,375.29
VI. Entomology	50,079.17	42,139.67
VII. Seed Laboratory	66,294.02	38,061.88
VIII. Analytical	195,848.98	194,737.19
IX. Crop Statistics	139,488.57	134,621.57
X. Soil Testing	82,810.19	71,139.33
XI. Blister Rust Control		4,698.53
XII. Veterinary	224,812.62	208,518.30
XIII. Test Farms	452,076.03	409,558.76
XV. Weights & Measures	88,494.75	81,958.20
XVI. State Museum	29,101.67	26,893.17
XVII. Hog Cholera Work	14,692.34	13,849.83
XVIII. Custodial	13,326.00	12,956.40
XIX. Miscellaneous	97,821.74	90,364.02
XX. Rabies		48.51
XXI. Japanese Beetle Control	2,133.50	597.95
XXII. White Fringed Beetle Control	9,435.21	9,321.27
XXIII. Indemnity Diseased Slaughtered Livestock	13,641.22	16,074.27
XXV. Vesicular Exanthema	33,648.91	
TOTAL EXPENDITURES	\$2,030,816.08	\$1,868,027.19

SUMMARY BY OBJECTS

	1953-54	1952-53
11. Salaries & Wages	\$1,288,698.06	\$1,192,595.58
12. Supplies & Materials	118,042.93	107,912.55
13. Postage, Tel., & Tel., Express	28,359.20	27,283.25
14. Travel Expense	191,898.98	174,014.72
15. Printing & Binding	26,823.56	27,941.94
16. Motor Vehicle Operations	13,141.91	13,830.40
17. Light, Power & Water	5,363.59	4,756.19
18. Repairs & Alterations	11,177.81	13,228.82

19. General Expense	105,677.44	108,062.01
22. Insurance & Bonding	2,801.43	3,667.98
23. Equipment	105,634.24	75,120.12
32. Additions & Betterments	39,537.52	33,080.16
33. Stores for Resale	19,211.47	22,437.83
Contribution to Retirement System	74,447.94	64,095.64
Purchase of Land		

TOTAL EXPENDITURES	\$2,030,816.08	\$1,868,027.19
Less Transfer from RMA Fund	48,990.34	44,708.22
Less Transfer from USDA		
Cooperative Agreement	559.24	481.39
Less Test Farm Perquisites	8,125.00	7,230.00
Pulpwood—Lewiston		4,683.74

TOTAL	\$1,973,141.50	\$1,810,923.84
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CONDITION OF FUNDS

Treasurers Cash—June 30	\$ 51,100.38	\$ 314,009.54
Investments in Bonds and		
Premiums on Bonds	103,874.98	103,874.98

TOTAL CREDIT BALANCE JUNE 30	\$ 154,975.36	\$ 417,884.52
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DEPARTMENT OF AGRICULTURE

Code 1101

STATEMENT OF RECEIPTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Fertilizer Tax	\$ 448,977.85	\$ 438,821.82
Cottonseed Meal	962.50	1,475.21
Feed	259,213.33	272,387.48
Seed Licenses	27,765.00	26,568.00
Condimental Feed	4,292.00	2,660.00
Serum	13,202.21	11,673.45
Costs	15,352.42	18,969.31
Linseed Oil	610.27	837.82
Bleached Flour	8,520.00	8,363.79
Bottling Plants	1,610.00	1,680.00
Ice Cream	1,550.00	2,978.00
Insecticides	25,340.00	23,790.00
Test Farms	133,478.59	138,558.94
Bakeries	2,420.00	2,520.00
Chicken Tests	46,341.69	35,330.57
Seed Tags	21,872.15	21,838.28
Inspection Entomology	6,452.00	6,011.05
Oleomargarine	1,375.00	1,500.00
Land Plaster & Agriculture Lime	19,872.06	23,297.85
Fertilizer Registration	5,143.00	4,942.50
Miscellaneous	2,842.24	1,229.30
Feed Registration	6,851.00	6,169.00
Canned Dog Food Registration	332.01	714.00
Lime Registration	504.15	360.00
Land Plaster Registration	50.00	
Livestock Marketing Permits	8,300.00	6,100.00
Dog Food Stamps	9,653.98	7,977.05
Hatchery Fees & Supplies	4,019.00	3,827.05
Permits for Out-of-State Milk	225.00	925.00
Interest on Investments	2,500.00	2,500.00

Anti-Freeze Permits	1,375.00	1,250.00
Credit Union Fees	14,036.89	12,515.04
Weights & Measures Fees	13,984.00	16,993.15
Garbage Permits	958.00	
Babcock Testers License	251.00	
TOTAL AGRICULTURAL RECEIPTS	\$1,110,232.34	\$1,104,763.66
Contribution from General Fund	600,000.00	885,191.00
TOTAL REVENUE	\$1,710,232.34	\$1,989,954.66

SHEEP DISTRIBUTION PROJECT

Special Fund—Code 3

RECEIPTS AND DISBURSEMENTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Credit Balance—July 1	\$ 38,291.40	\$ 26,730.41
Revenue Collections	96,678.25	152,661.37
Disbursements	114,171.42	141,100.38
Credit Balance—June 30	\$ 20,798.23	\$ 38,291.40

DISTRIBUTION OF SURPLUS COMMODITIES

Code 19

RECEIPTS AND DISBURSEMENTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Credit Balance—July 1	\$ 109,681.70	\$ 108,689.72
Repayments	5,852.76	9,762.75
Disbursements	9,119.33	8,770.77
Credit Balance—June 30	\$ 106,415.13	\$ 109,681.70

N. C. AGRICULTURE RESEARCH AND MARKETING ACT,

FEDERAL FUND

Special Fund—Code 51

RECEIPTS AND DISBURSEMENTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Credit Balance—July 1	\$ 1,099.17	\$ 3,807.39
Receipts—RMA Matching Fund	50,000.00	42,000.00

DISBURSEMENTS

Marketing Division Expenses in connection with RMA project—Transferred to Code 1101	48,990.34	44,708.22
Credit Balance—June 30	\$ 2,108.83	\$ 1,099.17

SPECIAL DEPOSITORY ACCOUNT REPORTING SYSTEM

Code 56

STATEMENT OF RECEIPTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Receipts		
Cash-Bond Deposits (Reporting System) ..	\$ 3,500.00	\$ 3,500.00
Credit Balance—June 30	\$ 3,500.00	\$ 3,500.00

GASOLINE AND OIL INSPECTION

General Fund—Code 320

STATEMENT OF DISBURSEMENTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Revenue Appropriation	\$ 323,277.00	\$ 379,257.00
Disbursements	280,377.83	342,916.49
Unspent Balance of Appropriation	\$ 42,899.17	\$ 36,340.51

STATE WAREHOUSE SYSTEM—SUPERVISION

Special Fund—Code 1801

FINANCIAL STATEMENT

July 1, 1952-June 30, 1954

	1953-54	1952-53
Credit Balance—July 1	\$ 32,696.92	\$ 38,985.96
Receipts		
Revenue Collections	31,335.95	29,881.74
Miscellaneous Collections	11,424.04	3,377.37
Expenditures	34,463.34	35,470.78
Miscellaneous Expenditures	16,010.71	4,077.37
Credit Balance—June 30	\$ 24,982.86	\$ 32,696.92

STATE WAREHOUSE SYSTEM—PRINCIPAL

Special Fund—Code 1802

STATEMENTS OF RECEIPTS AND DISBURSEMENTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Cash on hand—State Treas.—July 1	\$ 28,420.99	\$ 9,234.63
Receipts		
Repayment of Loans	13,635.08	19,186.36
Sale of Bonds	105,393.19	
Total Availability	147,449.26	28,420.99
Disbursements		
Loans to Warehouses	141,000.00	
Transfer of Funds	749.43	
Treas. Cash—June 30	5,699.83	28,420.99
Loans to Warehouses	295,900.00	168,535.08
Invested in 2½% Gov't. Bonds	440,000.00	550,000.00
Total Worth—June 30	\$ 741,599.83	\$ 746,956.07

COOPERATIVE INSPECTION SERVICE

Special Fund—Code 1803

STATEMENT OF DISBURSEMENTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Treas. Cash—July 1	\$ 29,035.30	\$ 62,361.30
U. S. Treasury Bonds—2½% Par Value	40,000.00	40,000.00
Premium on Bonds	1,175.00	1,175.00
Credit Balance—July 1	70,210.30	103,536.30
Receipts	291,646.35	253,781.35
Disbursements	272,389.42	287,107.35
Credit Balance—June 30	\$ 89,467.23	\$ 70,210.30

NORTH CAROLINA EDUCATIONAL RADIO & TELEVISION
COMMISSION

General Fund—Code 637

STATEMENT OF DISBURSEMENTS

August 1, 1953-June 30, 1954

	1953-54	1952-53
Appropriation (for 1953-55 Biennium)	\$ 12,000.00	
Disbursements	2,423.91	
Unspent Balance of Appropriation	\$ 9,576.09	

NORTH CAROLINA MARKETING COMMISSION

General Fund—Code 642

STATEMENT OF DISBURSEMENTS

March 1, 1954-June 30, 1954

	1953-54	1952-53
Appropriation (for 1953-55 Biennium)	\$ 2,550.00	
Disbursements	335.38	
Unspent Balance of Appropriation	\$ 2,214.62	

ADVANCE FOR LAND PURCHASE

General Fund—Code 3213

STATEMENT OF DISBURSEMENTS

August 1, 1953-June 30, 1954

	1953-54	1952-53
Appropriation	\$ 115,000.00	
Disbursements	109,869.49	
Unspent Balance of Appropriation	\$ 5,130.51	

PERMANENT IMPROVEMENTS—ADDITIONS AND BETTERMENTS
Code 14391

STATEMENT OF DISBURSEMENTS

September 1, 1953-June 30, 1954

	1953-54	1952-53
Appropriation	\$ 86,500.00	
Unallotted Balance	22,500.00	
Allotments Made	64,000.00	
Disbursements	28,589.80	
Unspent Balance of Allotment	\$35,410.20	

EMERGENCY HAY PROGRAM

Code 22

RECEIPTS AND DISBURSEMENTS

November 1, 1953-June 30, 1954

	1953-54	1952-53
Credit Balance—November 1		
U. S. Department Agriculture Allotment	\$ 135,000.00	
Disbursements	94,522.20	
Credit Balance—June 30	\$ 40,477.80	

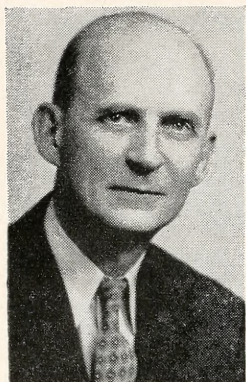
CONTRIBUTION FROM THE GENERAL FUND

General Fund—Code 3212

STATEMENT OF DISBURSEMENTS

July 1, 1952-June 30, 1954

	1953-54	1952-53
Revenue Appropriation	\$ 889,868.00	\$ 712,565.00
Expenditures		
Contribution to Department of		
Agriculture—Code 1101	\$ 600,000.00	\$ 712,000.00
Unspent Balance of Appropriation	\$ 289,868.00	\$ 565.00



DR. E. W. CONSTABLE

DIVISION OF CHEMISTRY

DR. E. W. CONSTABLE

State Chemist

The Division of Chemistry is concerned in the administration of control laws dealing with fertilizers; liming materials and land-plaster; livestock feeds; insecticides; foods, drugs and cosmetics; linseed oils; automotive anti-freeze; and the application of pesticides by aircraft. The latter is a new law enacted by the 1953 Legislature and is dealt with in detail in a following section.

A requirement common to each of these laws, excepting the aerial crop-dusting law, is that the products covered shall bear specific labeling that must be true, and shall be given specific guarantees that must be met. Further requirements for foods, drugs and cosmetics are that they shall be wholesome and free from adulteration or exposure to insanitation and that drugs shall carry cautions and adequate directions for use. Pesticide labeling also must give directions for use, warning against dangers, antidotes and first aid procedures.

AERIAL CROP-DUSTING LAW

The North Carolina Aerial Crop-Dusting Law became effective July 1, 1953. It was the legislative response to complaints and fears which arose as a result of certain careless and irresponsible applications of pesticides by air. Such applications permitted pesticides to spread beyond the areas intended to be treated, involving other crops, pastures, livestock, fish ponds, travelers on public highways, residences and settlements. At times damage to power and telephone lines and to buildings by low-flying airplanes was ignored by operators. This type of performance, while limited, served to bring disrepute on the entire airplane dusting industry.

The purpose of the law and regulations promulgated thereunder is to provide protection to farmers and to the airplane dusting industry. "Contractors" and "applicators" (pilots) are required to procure state licenses to engage in this line of

business. To qualify for such licenses, they must show reasonable knowledge of the proper use of pesticides, the dangers involved and the precautions necessary in handling these materials. Applicators must also carry not less than \$20,000 liability insurance against damage by aircraft to persons or property.

Licenses may be revoked for fraudulent practices, for faulty, careless or negligent application or for other failure to comply. All licenses expire on December 31 of each year. During the first six months after the law became effective (July through December, 1953) licenses were issued to 34 contractors and 64 applicators. From January 1, 1954, to the date of this report, 57 contractors and 113 applicators were licensed.

Considering all circumstances, compliance and cooperation have been effective, but the fact that no funds were provided for enforcement has been a handicap. By integrating this with feed and insecticide inspection and by employing additional temporary office help, the work has been carried on. However, it is obvious that a fully effective control program cannot be accomplished, nor adequate protection afforded, under these limitations. Therefore, a request is being made in the 1955-57 budget for one additional inspector to be employed jointly in aerial crop-dusting inspection and general insecticide inspection.

COMMERCIAL FERTILIZERS AND LIMING MATERIALS

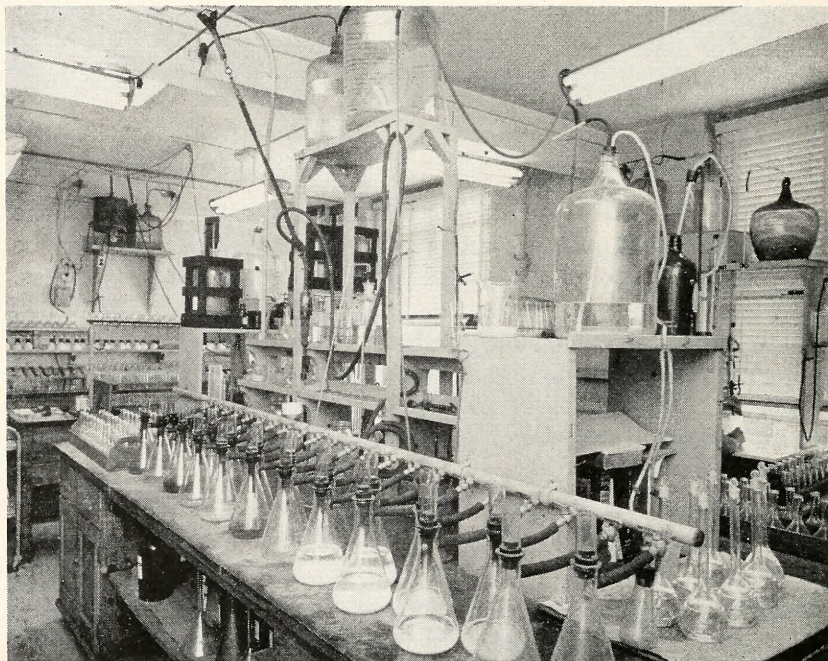
Among the provisions of the fertilizer and lime laws is the requirement that official samples be collected and analyses be made to determine whether these products meet the guarantees. Analyses of fertilizers may cover only one or a number of items, namely, nitrogen, phosphate, potash, calcium, magnesium, chlorine, sulphur, boron, manganese and acid-forming and non-acid-forming qualities. Liming materials are limited to calcium, magnesium and acid neutralizing value; landplaster to calcium sulphate.

The number of samples analyzed during the biennium was 21,122 an average of 10,561 per year. With present facilities this is about the maximum volume that can be effectively handled and prepared for publication in reasonable time. Special attention is given to brands which appear to be running off-guarantee. However, in order that all brands on the market may be given due

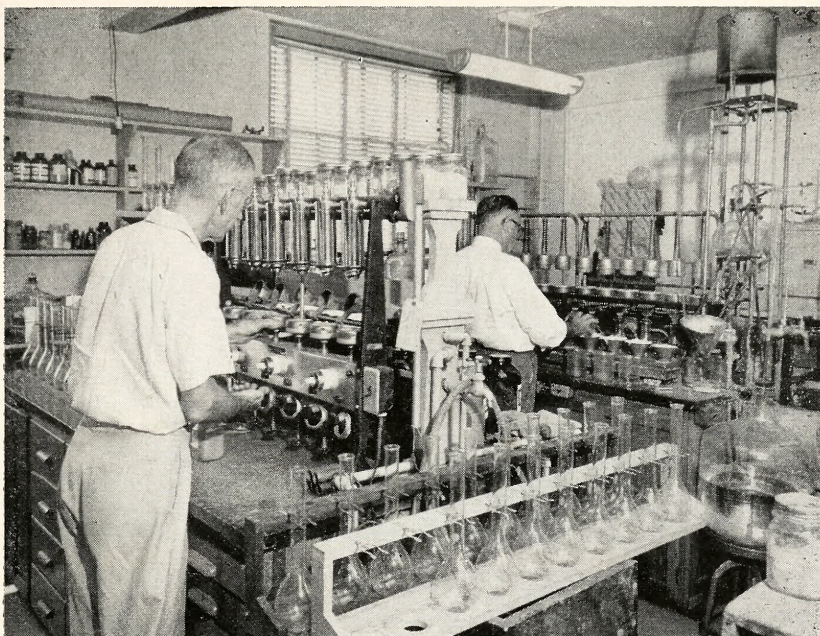
evaluation and credit, it is necessary that a certain balance according to distribution be maintained. Coverage for the two years was as follows:

Official fertilizer samples	20,697
Unofficial fertilizers and fertilizer materials for farmers	141
Official liming material with potash, and landplaster	153
Research samples, N. C. Experiment Station	131
TOTAL	21,122

In order that the work may be of full value, every effort is made to turn out analyses and reports as early as possible. The flow of analytical reports during the fertilizer season therefore is exceptionally heavy. It is not possible for the regular staff to keep this work current. Part-time help has been employed for several years on lapsed and transfer funds. This cannot be de-



Laboratory where fertilizer is analyzed for phosphorus. This is one of several laboratories for determining the various ingredients in commercial fertilizers.



Commercial stock and poultry feeds are analyzed in this section of the laboratory.

pended upon, however, and a budget request is being made to provide for a part-time employee from April through September of each year.

COMMERCIAL FEEDS

In keeping with the provisions of the feed law and the canned dog food law, official samples for checking are collected from all parts of the state. Chemical analyses are made for protein, fat, crude fibre, ash and urea, the latter having come into prominence as a component of certain feeds. The individual materials of which a feed is composed is an equally important consideration. These are determined microscopically. Canned dog foods are also analyzed for moisture.

The capacity of the present laboratory and personnel is around 2,200 samples a year. As with fertilizer, while giving special attention to brands that tend to run off-guarantee, the general plan of operation is to prorate coverage in a manner so as to give all brands due evaluation and credit.

Results of the work for the biennium show that standards were maintained at a normal level. Coverage for that period was as follows:

Official samples	4,825
Unofficial and miscellaneous samples	471
<hr/>	
TOTAL	5,296

Among the needs for this work is a more comprehensive coverage of drugs and antibiotics contained in medicated feeds, and of mineral supplements. New space now available will provide more room for such activities. However, in view of the limited number of such analyses that can be handled by an analyst and the full load that present personnel carries, expansion in this field will be dependent on additional help.

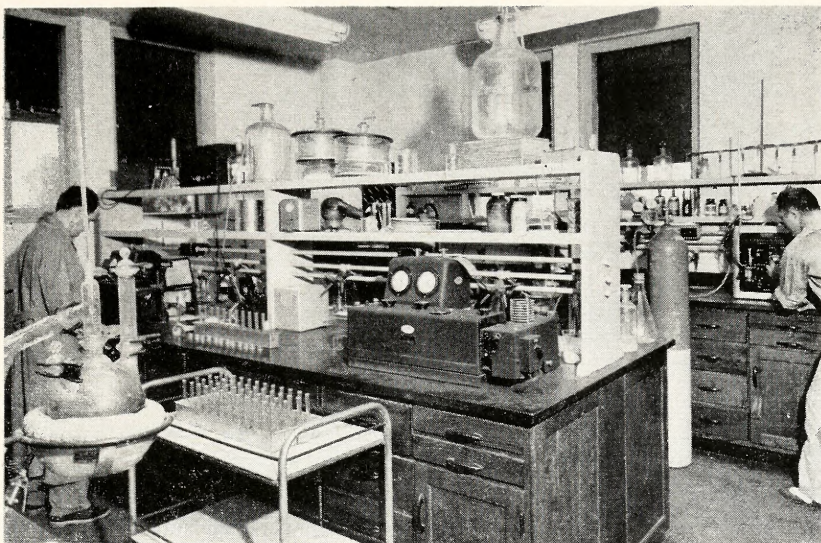
ECONOMIC POISONS

A period of rapid development and expansion has characterized the insecticide field for a number of years, due to the greatly increased demand for these products and the development of many new ones. This trend now appears to have evolved into a period of relative stability, although there still are changes and additions.

The prominent period of expansion was through the years 1946-1951, during which time registrations of insecticides grew from approximately 400 to 2,000 items per year. Following that period the number of items have ranged from 2,100 to 2,300 per year.

Within certain bounds these trends have been reflected in the Department's activities in insecticide control. The number of official samples collected for analysis has increased from approximately 300 per year in 1946 to an average of 1,500 per year at the present time. This volume filled to capacity the Department's facilities for handling these products, particularly that of the field inspection staff.

The insecticide control program was effective within the limits of the provision previously made for it. However, when the insecticide need and demand shaped into a definite pattern, and when these limits became apparent, it was obvious that the coverage afforded was inadequate to permit a properly proportioned pesticide control program.



Instrument laboratory for spectro-photometric and other types of analyses of various products

Two bottlenecks which obstructed adequate coverage were lack of laboratory space and shortage of field inspection personnel. The Legislature, in recognition of these facts and of the indispensability of adequate and reliable supplies of pesticides in bringing through the crops of today, provided for adequate laboratory facilities. The need for inspection help is the remaining bottleneck. This has been intensified because of the necessity of adding the inspection required under the aerial crop-dusting law to the duties of the feed and insecticide inspectors. As stated in the foregoing section on the aerial crop-dusting law, one additional feed and insecticide inspector is being requested.

Other problems of critical nature arise from carelessness and misuse of pesticides. These stem largely from failure to read labels and heed cautions and directions. Three cases of serious injury were reported, one involving the sickness of a baby due to exposure to an insect spray and two involving the loss of an eye.

An example of misuse is the application of oil-base sprays to grain as a grain fumigant. Grain so treated is unfit for any further use except perhaps as seed. Every effort is being made to safeguard the use of insecticides.

LINSEED OIL

Linseed oil is highly susceptible to hidden adulteration. The purpose of the linseed oil law is to circumvent this type of fraud. Surveys for the biennium covered 531 lots of oil. With only several exceptions, these were found in good order and unadulterated. The unsatisfactory lots were removed from sale. Thirty-eight lots which did not carry the required inspection stamps were stopped from sale until these were applied.

AUTOMOTIVE ANTI-FREEZES

The internal combustion anti-freeze law has continued to show the high level of effectiveness which has characterized it since its enactment in 1949. No brand of anti-freeze has been offered for registration that has been found unacceptable. No complaints of damage to automotive equipment has reached the Department, nor has any illegal brand of anti-freeze been found on sale in the state.

A large measure of credit for this level of effectiveness is due to the full cooperation of dealers, the Oil Jobbers Association and to ethical manufacturers. It appears practically impossible to sell any jobber or dealer in the state a stock of anti-freeze without showing that it is under current registration. This status doubtless reflects back to the great damage and loss suffered by citizens of the state prior to the advent of the present law. Fifty-nine brands were registered for 1952-53, and 56 for 1953-54. These represent 33 manufacturers.

FOOD AND DRUGS

The North Carolina Food, Drug and Cosmetic Act is the state's basic law for affording its citizens safe and wholesome supplies of these products. It is supplemented by specific laws dealing in fuller detail with bottling plants, bakeries, cereal products and oleomargarine. These laws require that these products shall be free of adulteration by additions, abstractions or exposure to insanitation and that they bear factual labeling which shall not be false or misleading in any particular. Primary operations in accomplishing these purposes are the inspection of processing plants, storage and sales outlets and the collection and analysis of samples.



Section of laboratory where various types of foods are analyzed.

This work has been seriously handicapped by limited personnel in inspection, chemistry and office work. North Carolina's population has grown over a period of years and demands have increased while the staff has remained static or has decreased. Present coverage is entirely inadequate, and a request is being made for two additional food and drug inspectors, two food and drug chemists and one stenographer-clerk. The latter is further explained under "Personnel".

INSPECTION OF PLANTS AND SALES OUTLETS

One of the best methods of avoiding trouble is to prevent its occurrence at likely points of origin. This is the purpose of the periodic inspections of food processing plants, storage and sales outlets. It is required that certain standards be maintained as to environment, housing, equipment, facilities, processing, sanitation and labeling and that only sound and wholesome materials be used.

Systematic inspections are made of plants, storage and outlets to see that these standards are met. If defects of a minor nature are found, they usually can be corrected by suggestion. Major defects may require stoppage of operations until correction is made, embargoing of materials not meeting requirements, or other appropriate action as circumstances dictate. Of a total of

8,081 labels inspected in detail, 645 were found to be defective and correction required. With only limited exception, those who engage in food handling have a high sense of responsibility and cooperate fully.

SUMMARY OF FOOD PLANT INSPECTIONS

Bakeries and Doughnut Plants	2,055
Bottling Plants	1,373
Other types of plants (processing and packaging meats, pickles, seafoods, flour and meal, candy, potato chips, fruits and vegetables, etc.)	2,941
TOTAL	6,369

PLANT OPERATIONS SUSPENDED

Bakeries	17
Bottling Plants	3
Others	11
TOTAL	31

ADULTERATION AND MISBRANDING OF FOODS

There are many ways through which the public's food supply may become unwholesome, fraudulent, or dangerous to health. These include addition of poisonous or deleterious substances, decomposition, insanitation, exposure to vermin, slaughter of diseased animals, misrepresentation, abstraction of valuable constituents, addition of cheap or worthless dilutents.

One of the most insidious forms of adulteration arises from spoilage which results in food poisoning. A great majority of these cases, particularly the less serious ones, do not come to the attention of the Department. Twelve cases were dealt with during the biennium, known to have affected approximately 400 people. Involved were such products as custards and pies, meat and potato salads, seafoods, sandwiches, ice cream and meats. In the more serious ones, illness affected 275 school children, 70 college students, and 17 lunchroom patrons. A number of these were hospitalized. Dried egg powder (baby food) affected an unknown number of babies.

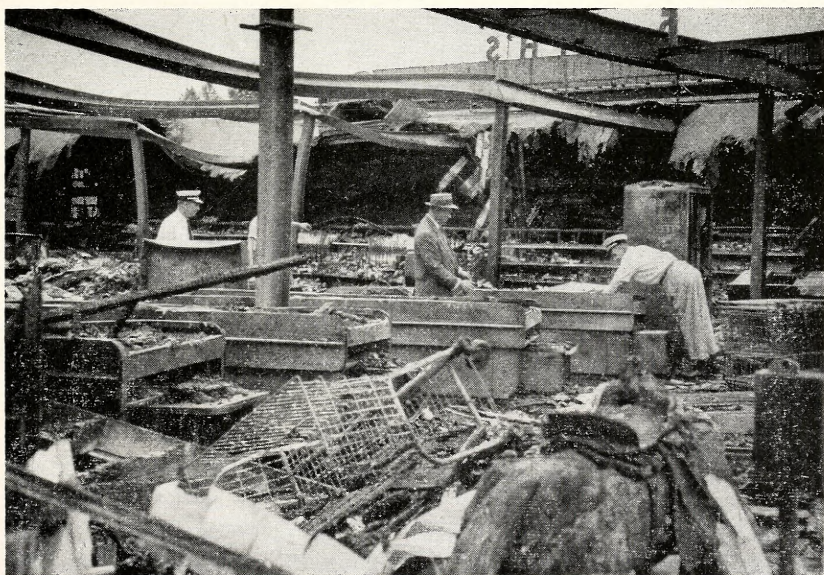
Other instances of adulteration and misbranding were dealt with. In a total of 225 actions approximately 3,000 tons of food products were removed from the market and either destroyed or diverted to uses other than for human food.

A large proportion of these activities are based on analyses of official samples. The Department food inspectors collect these from all parts of the state, both for routine checking and for the evaluation of situations in which unusual issues arise. A total of 1,035 samples were collected by food inspectors during the biennium. Each year a large number of unofficial samples are submitted to the Department for analysis. They represent a variety of products and interests. Effort is made to analyze as many of these as the individual situations merit and as time will permit.

FIRES, FLOODS AND WRECKS

Fires, floods, storms and wrecks often involve quantities of foods and drugs. Overzealousness in salvaging to minimize loss always involves danger to consumers. The Division is particularly attentive to such situations and acts promptly.

Of this category, fires constituted most of the losses and problems during this biennium. These involved food and drug sup-



A Greensboro food store destroyed by fire. Little can be salvaged from this type of exposure that is suitable for human consumption.

plies in Charlotte, Clinton, Concord, Dunn, Durham, Elizabeth City, Greensboro, Greenville, Raleigh, Tarboro, Washington and Wilmington. One of the most destructive occurred in Wilmington, resulting in a loss above one and one-half million pounds of sugar, only a limited part of which could be salvaged. Storms and wrecks, fortunately, caused less damage. The approximate total losses involved were 5,800,000 pounds of foods, valued at \$900,000.

DRUGS

Chemical control of drugs is designed to make available to the professions prescribing and selling them, and to consumers, a supply of reliable, honestly labeled drugs; and to afford protection from charlatanism and abuses. The Department's facilities for this work are limited, but every effort is made within these limits to afford the maximum protection.

The more prominent activities in this field concerned illegal sale of dangerous drugs, removal from sale of unsatisfactory or harmful drugs, and the sale of "quack" or "cure-all" remedies. Some of the more powerful drugs are unsafe for self-administration. Therefore, the law restricts their sale to prescription only. The barbiturates, or "sleeping pills", are prominent among these. Others are stimulants.

The demand for these drugs makes them attractive items in the illegal drug trade. Twelve such cases in as many towns or locations were investigated. In some instances purchases were attempted to procure evidence. In all cases, either the procedure of investigation or a warning resulted in the cessation of such violation.

Periodically, drugs appear on the market which by some defect or mishap are unsatisfactory or dangerous. Prompt attention is given to stopping sale and recalling these. Twenty such instances occurred during the biennium. Close cooperation with the U. S. Food and Drug Administration is maintained in this activity.

The "quack" and "cure-all" remedies are always a lucrative and inviting field to charlatans. Such remedies appear periodically and include such items as soap bark at seven dollars per pound to cure arthritis; a tonic to remove kidney stones, made by boiling common brown wrapping paper in water; and the inherited secret formula alleged to cure many ailments, including

epilepsy and cancer. One such operation was set up in a small town near Raleigh. The entire stock and promotional literature were placed under embargo. These, abandoned by the owner who left the state, were destroyed. One death from epilepsy was associated with the sale of drugs by mail. This method of selling remains a problem.

OLEOMARGARINE

Limited inspection has been carried out under the oleomargarine laws. Failure to display the required sign stating that oleomargarine is served are found and corrected without trouble.

An amendment to the law in 1949, permitting the serving of the colored product in public eating places, created a tremendous inspection job; but no appropriation was made for carrying this out. It is not possible for the present limited inspection staff to do this job adequately while performing the many other duties required. Under the section of the law requiring the licensing of wholesale dealers 111 licenses were issued.

COOPERATION WITH OTHER AGENCIES

In line with the policy of cooperation with other agencies, work in certain lines was carried out on a level of effectiveness not otherwise possible. These agencies were the U. S. Food and Drug Administration, the North Carolina Board of Pharmacy and the Boards of Health of the state and various cities and counties.

Among the items involved were stopping illegal sale of drugs, and removal from sale of deteriorated and dangerous drugs, injurious baby foods, fast moving and perishable products such as watered oysters, and other items of less critical nature. One item new in this area, and of particular concern, was contamination of food crops by irrigation with stream water which was polluted with raw sewage. This resulted in the destruction, by court order, of a large crop of cabbage. Stream pollution becomes a hazard to the food supply.

LABORATORIES AND EQUIPMENT

Since the new annex to the Agriculture Building is completed and additional space allotted, activities now are underway for

expanding and renovating laboratories. This is a much needed relief to the congested and crowded conditions which developed over a period of years as a result of periodically increased load and which have been a handicap both in the chemical work and to laboratory personnel.

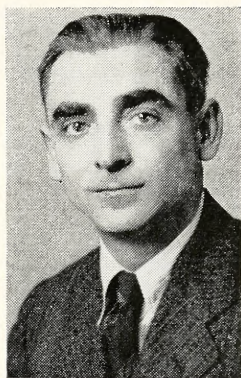
PERSONNEL

As discussed in preceding sections of the report, some of the programs have been handicapped by lack of adequate staffs. To correct this, requests have been made for additional personnel as follows: Part time help, six months per year, for work on fertilizer records and in getting out fertilizer reports; one inspector for joint field inspection in aerial crop-dusting, insecticides and feeds; two inspectors and two chemists for food and drug work, and one secretary to relieve the heavy overload of office work. The latter arises from the new laws added—insecticides, anti-freeze and aerial crop-dusting, as well as others—fertilizers, feeds, food and drugs, bottling plants, bakeries, linseed oil, bleached flour, etc.

Commendation and appreciation are due the personnel of the Division for the level and volume of work carried out during the biennium.

CREDIT UNION DIVISION

D. R. GRAHAM
Superintendent



D. R. GRAHAM

The North Carolina Credit Union Law was enacted by the 1915 General Assembly. North Carolina was the third state in the union to adopt such legislation. Because its primary purpose was to provide a way for farmers to take care of short-term credit needs through their own co-operative efforts, the law designated the Department of Agriculture as the administrative agency.

A credit union may be organized by any group having a common bond of association, occupation or residence. Capital from which loans are made is accumulated from the savings of members, and loans are made at a maximum interest rate of six per cent per annum.

When the Federal Government entered the field of assisting farmers in financing their operations, interest in rural credit unions lagged; but in recent years a number of rural credit unions, mainly in eastern North Carolina, have been organized and many of them are going a long way toward taking care of the short-term credit needs of the people within their field of membership.

Credit Union National Association, the trade organization of credit unions, has engaged in a nation-wide advertising campaign during the past two years, using magazines, newspapers and radio for the purpose of acquainting people throughout the country with the advantages of credit unions. A number of credit unions have been organized in this state as a direct result of this campaign.

In the meantime, we have continued our efforts to weed out those credit unions which have not operated according to law and good credit union practice. The principal reasons for these liquidations continues to be lack of interest and failure to keep proper records. These groups are in the minority, but liquidation procedure is so cumbersome that a considerable part of our time is required for this work.

The following breakdown into classification does not include credit unions which are dormant or which we have in the process of liquidation: Rural community, 48; urban community, 32; manufacturing, 36; public utilities, 21; government, state, county and municipal employees, 19; postal employees, 16; retail merchandise, 2; newspapers, 9; restaurant, 3; miscellaneous, 17. laneous, 17.

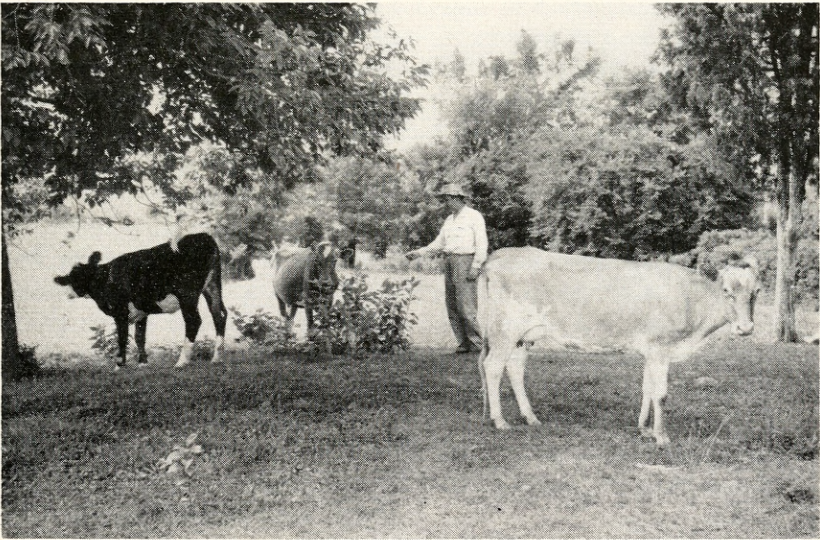
A new field of credit union service has recently been opened. The town of Hope Mills tried repeatedly to obtain banking service without success and upon learning of the credit union plan called on this Department for assistance. We set up a credit union for them and it is operating very successfully. Although under the law credit unions are restricted and are unable to perform many of the functions of a bank, the Hope Mills credit union is going a long way toward filling that community's need for banking service.

There are numerous communities in the state which are too small to justify a bank and we are confident that within the next few years we will be able to carry the credit union plan to them in order that they may take care of their short-term credit needs at home and at the same time give the people of the community a convenient place where small amounts of money may be saved.

Active credit unions as shown by the table below have only increased by two in number during the past two years. This small increase was brought about by liquidations referred to above. Total resources and loans to members continue to increase and we have every reason to believe that within the next two years we will be able to complete liquidation of the inactive credit unions and will then be able to devote our full time to the promotion of new credit unions and the careful supervision of the credit unions now in existence.

NUMBER, MEMBERSHIP AND ASSETS
OF STATE-CHARTERED CREDIT UNIONS

	<i>June 30, 1952</i>	<i>June 30, 1954</i>
Active Credit Unions	211	213
Total Members	55,081	61,463
Total Assets	\$11,314,522.03	\$14,704,742.81



Credit Union loans, large and small, help industrial workers to augment their income through farming operations. Down payment for the 41-acre farm and orchard shown in the top photo, and money to purchase cows shown in the lower picture, were provided by loans to two members of the Enka Credit Union. There are also many other types of groups benefiting from Credit Unions. Communities that are too small to support a bank can partially fill their needs for banking services through such an organization.

NORTH CAROLINA CREDIT UNIONS
CONSOLIDATED BALANCE SHEET

June 30, 1954

ASSETS

	<i>June 30, 1952</i>	<i>June 30, 1954</i>
Cash on Hand	\$ 2,207,593.25	\$ 2,199,213.29
Loans to Members	6,998,183.61	10,297,167.68
U. S. Government Bonds	1,944,308.35	2,049,366.10
Other Assets	164,436.82	238,995.74
Total Assets	<u>\$11,314,522.03</u>	<u>\$14,704,742.81</u>

LIABILITIES AND CAPITAL

Shares	\$ 8,584,978.68	\$11,648,608.28
Deposits	1,050,826.11	1,261,862.47
Reserve Fund	478,763.32	681,323.95
Undivided Earnings	356,561.68	480,439.42
Other Liabilities	843,392.24	632,508.69
Total Assets	<u>\$11,314,522.03</u>	<u>\$14,704,742.81</u>

DAIRY DIVISION

C. W. PEGRAM

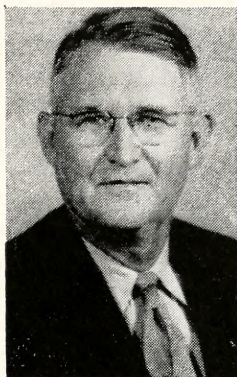
Director

Dairying, one of North Carolina's basic industries, continues to grow. Data from the Federal-State Crop Reporting Service indicate that milk production for the first six months of 1954 was 907 million pounds, nine percent above the same period in 1953, and the largest production of record for these months. North Carolina dairymen received \$56,209,000 cash income from sales of milk, cream and butter in 1953, and gross farm income from dairy products for that year was \$101,931,000.

During the last three years 1,527 new producers have gone into Grade A production. On January 1, 1954, there were 411,000 milk cows on farms, an increase of more than 19 percent since 1940. Average milk production per cow is now reported at 4,490 pounds, a marked increase over the average production of 2,600 pounds for 1900. These data indicate that North Carolina dairymen are materially increasing their efficiency in breeding and herd management.

It is interesting to note that North Carolina ranks 23rd in the nation with respect to cash receipts from livestock and livestock products. This is evidence that there is room for further expansion in dairying and other livestock enterprises. Over four million people depend on the dairy industry in this state for milk and dairy products. Despite sharply increased milk production, it was necessary to bring in from outside the state 42,000,000 pounds of milk in 1952, and nearly 16,000,000 in 1953. The greatest demand for milk is during the fall months. Many dairymen would receive larger returns if they adjusted their production to this period of peak demand.

Markets for milk and dairy products are being expanded. Paper cartons, technical advances in refrigeration, good rural roads and increased population have all played their part in this expansion. Milk is now available to all communities throughout the state.



C. W. PEGRAM

Problems have also grown with dairy development, and the 1953 Legislature provided for the creation of a North Carolina Milk Commission. This Commission has been active for the past year. It has held hearings, divided the state into marketing areas, and has issued orders setting minimum prices to be paid to producers. Regulations governing base production plans have been established, and trade practices in the industry have been given attention by the Commission.

The Milk Commission is a separate agency from the Department of Agriculture, but close cooperation exists between them.

The Board of Agriculture has given considerable time and thought to dairy problems during this biennium. After several public hearings it rendered a decision interpreting the regulations relating to use of the word "churned" and other words or pictures on containers of cultured buttermilk which might tend to mislead the consumer. A proposal to permit "Grade A" labeling of recombined buttermilk and chocolate milk, under certain conditions, was also considered and denied.

The Board adopted new definitions and standards for single cream, double cream and sour cream. Regulations for butterfat testing were revised. The minimum percentage of solids-not-fat of milk, buttermilk, lactic milk and reconstituted or recombined milk was changed from 8.50 to 8.25, to conform with the U. S. Public Health Milk Code.

Regulations pertaining to sampling and testing milk and cream were amended by the Board of Agriculture on June 22, 1954. The changes made were in line with recommendations promulgated by The American Dairy Science Association. The new regulations spell out the necessary steps to be followed in securing representative samples and accurate testing of milk and cream by licensed testers. North Carolina is the first state to adopt the procedures proposed by this association.

The Board of Agriculture has received several requests that the dairy regulations be amended to permit the sale of milk from refrigerated bulk dispensers in restaurants and other public eating places. The restaurant industry, as well as manufacturers of the dispensers, have urged this proposal. The dispensers are permitted by law and regulation in numerous other state, and this Division has made an extensive survey of the experience and regulatory measures prevailing in those states.

Recently the Board authorized the appointment of a committee, representing various segments of the dairy industry and the State Department of Health, to recommend regulatory provisions governing the use of such dispensers. This committee's work is nearing completion and its recommendations will be presented to the Board in the near future.

Bulk tank cooling of milk at the farm, with tank truck pick-up delivery to milk plants, is another innovation facing the dairy industry. It is believed that this movement will lower collection and receiving costs and improve milk quality. It also eliminates the conventional 10-gallon can.

However, this system has the disadvantage of being practical only for producers who have sufficient volume to justify installation of costly farm bulk tanks. Regulations designed to provide uniformity of installation and sanitary practices are in process of preparation for consideration by the Board of Agriculture.

Milk dispensers and farm bulk milk cooling tanks indicate that dairying is advancing with modern technology. As new systems of milk marketing and handling are adopted, new safeguards and control measures are necessary, which increase the responsibility and activity of this Division.

Perhaps the most outstanding achievement of this Division during the biennium has been the highly successful operation of a new mobile dairy laboratory. This portable unit has made a marked contribution to the milk control program and has provided full laboratory services to communities which did not have adequate laboratory facilities. In many cases it was used to augment local health-department and dairy-plant laboratories. Full cooperation was offered milksheds needing assistance. As a result, milk coming to dairy plants is of better bacteriological quality than ever before.

ICE CREAM

North Carolinians consume around $3\frac{1}{3}$ gallons of ice cream and other frozen desserts per capita annually. Estimated production for 1953 was 13,602,000 gallons.

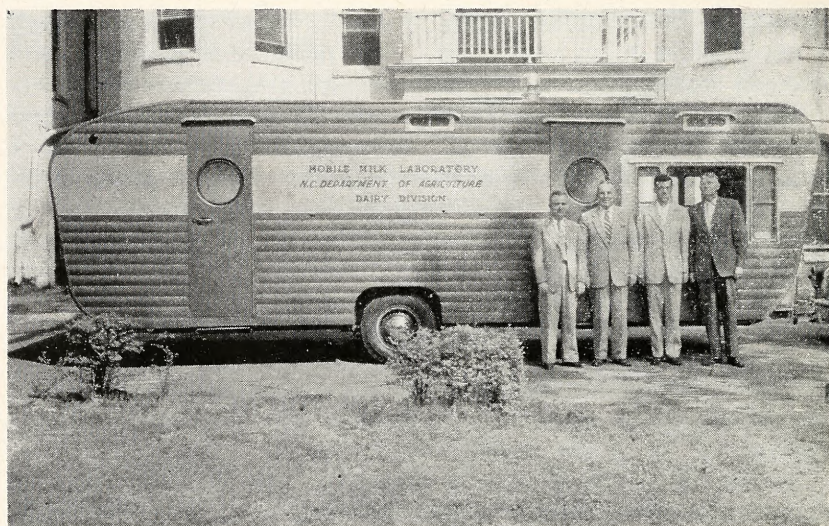
To maintain the standards of purity and identity, the field force of this Division is constantly checking all manufacturers. There are 65 ice cream plants and 230 counter and soft ice cream operations in the state. During the 1952-54 biennium 1,795 inspections were made and 2,408 official samples were purchased

and delivered to the central laboratory where full analysis is made. If a product is found deficient in composition or carries a high bacteria count, it is embargoed by a Stop-Sale order. When violations are repeated or wilful, the offending manufacturer is prosecuted.

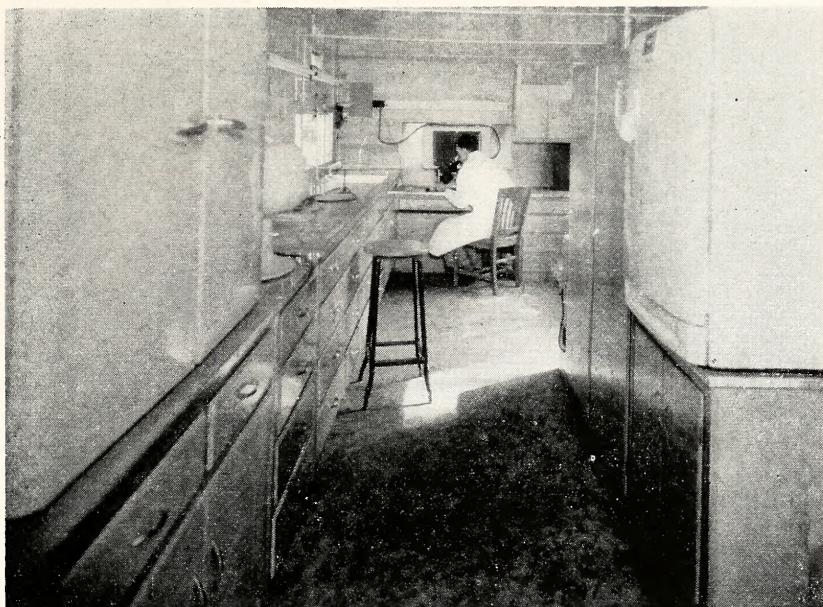
MILK IMPORTS

Seasonal fluctuations in milk production, and requirements of military installations located in the state, make it necessary to import some Grade A fluid milk from other states. The out-of-state supplier and the receiving plant in North Carolina are both required to obtain permits from this Department. Before such permits are issued, information is secured regarding the sanitary rating of the out-of-state supplier, and sometimes it is necessary to send a representative of this Division to make a plant inspection.

During 1952 it was necessary to import 42,109,000 pounds of milk, but only 15,697,000 pounds were imported in 1953. With the rapid expansion of our dairy industry sufficient milk should be available in the state throughout the year in the near future.



Exterior view of the Department's mobile dairy laboratory, which was put into service in the spring of 1953. This laboratory has proved of inestimable value in the Dairy Division's inspection and testing work. Ranging the state, it moves from plant to plant and supplements the work of the central laboratory in Raleigh.



Interior view of the mobile dairy laboratory. Used also to augment health-department and milk-plant laboratories, this mobile unit is now filling gaps in laboratory facilities which have existed in some communities.

SUPERVISION OF BABCOCK TESTERS

The Babcock Test Law requires every person testing milk and cream to be licensed. The Dairy Division supervises the testing and sampling of 106 licensed testers at 106 milk and dairy processing plants. During this biennium 1,000 plant investigations were made, covering 24,198 samples. Improvements in sampling and testing are noted throughout the state. To secure accurate samples from some weigh tanks, new regulations require that mechanical agitators be installed.

Much time and travel is spent on this program, and it can be positively stated that our dairymen are getting accurate butter-fat tests. Milk varies because of many factors, such as lactation period, weather and other conditions. This Division, acting in the capacity of a referee, makes for better understanding between producer and distributors.

INSPECTING, GRADING AND TESTING DAIRY PRODUCTS

This important program has been accelerated during the past biennium. Over 10,000 official samples of milk and other dairy products were analyzed, including producers' milk as well as finished products. Laboratory analyses covered plate count for bacteria, butterfat and solids tests, including lactometer and cryoscope determination. In cases where samples showed deficiencies, reports were made to producer or plant and to local health officials. Follow-up field inspection was made whenever possible. Nearly 1,800 farm inspections were made. This project was carried on in very close cooperation with local health departments. The mobile laboratory was of great value in this work, as it was moved from plant to plant throughout the state.

To prevent fraud and deception the regulations set up specific labeling requirements. To maintain the standards of purity and identity for these products, the Division's field men are constantly checking manufacturing and production practices.

Milk from North Carolina Farms is coming to dairy plants cleaner and of better bacteriological quality than ever before. However, there is opportunity for further improvement. Our goal is to secure the best possible milk and dairy products for all our people.

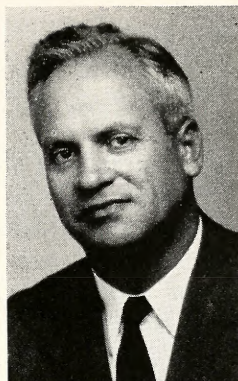
STATISTICAL REPORT

Plant investigations (Butterfat check testing)	1,002
Testers Licenses issued (yearly)	106
Testers Examinations	25
Butterfat check tests (Fresh daily)	22,860
Composite Samples (check tests)	1,338
Total Butterfat Tests	24,198
Official Milk and other Dairy Products analyzed	10,123
Unofficial Milk Samples	371
Official Ice Cream and Frozen Dairy Products	2,408
Unofficial Ice Cream Samples	20
Ice Cream Plant Inspections	1,739
Dairy Farm Inspections	1,795
Butter Plant Inspections	10
Cheese Plant Inspections	2
Out-of-State Milk Inspections	15
Lactometer	1,110
Court Convictions	1
Gallons, Ice Cream Embargoes	24
Gallons, Ice Cream Mix Embargoes	140
Gallons, Milk Embargoes	378
Ice Cream Plants ordered closed	3
Milk Can Warnings issued	1,115

DIVISION OF ENTOMOLOGY

C. H. BRANNON

State Entomologist



C. H. BRANNON

The Division of Entomology is charged with the responsibility of enforcing the state plant pest and honey bee laws, rules and regulations. It also cooperates with the Federal Government in the administration of Federal plant pest quarantines which apply to North Carolina.

The Division also maintains an excellent insect collection which has been developed over a period of fifty years. Detailed records are also kept in connection with the collection. The collection and records are available for consultation by any competent entomologist.

NURSERY INSPECTION

Fifteen years ago there were 150 nurseries in the state. Now there are approximately 500 nurseries in North Carolina. All of these nurseries are carefully inspected each year and issued certificates which permit shipment of nursery stock in North Carolina and to all other states. Such permits are necessary to comply with various out-of-state regulations. Serious plant pests would be spread all over the state and the nation, if it were not for this efficient inspection service, which requires over three months of concentrated effort by four staff members.

Nurseries located in quarantine areas, or which may have a serious plant pest problem, are inspected repeatedly to insure the distribution of clean stock. The nursery industry of the state has always given this Division excellent cooperation.

Nursery dealers (individuals or stores) are required to obtain a state license from this Division. Dealers must file a form with this office which lists their source of supply and pledges each to obtain stock only from certified nurseries. Each unit of a chain store group must obtain a separate license. Staff inspectors check stores to enforce this requirement.

WHITE-FRINGED BEETLE

The white-fringed beetle was first found in North Carolina in 1942. Since that time infestation has been found in the following 24 counties, all in eastern North Carolina: Anson, Brunswick, Craven, Cumberland, Duplin, Edgecombe, Harnett, Johnston, Jones, Lenoir, Mecklenburg, Nash, New Hanover, Onslow, Pender, Pitt, Robeson, Sampson, Scotland, Stanly, Union, Wake, Wayne and Wilson.

The white-fringed beetle project is a cooperative program with the Federal Government. The Federal quarantine furnishes twelve inspectors, cars and spray equipment. These inspectors are located at Albemarle, Burgaw, Charlotte, Fayetteville, Fuquay Springs, Goldsboro, Jacksonville and Wilmington. In addition to these permanent inspectors ten or fifteen temporary inspectors are also assigned to the state during the summer season.

The state furnishes some personnel, insecticides and fumigants. Fifty-six group meetings were held during 1953 and excellent cooperation was obtained for the program. Cities, counties, nurseries, commercial concerns and railroads have provided funds for treating private properties. The North Carolina Highway Commission has furnished insecticides for the treatment of their rights-of-way.

The insecticides used in this work at present are Dieldrin (especially the granular form), chlordane and DDT.

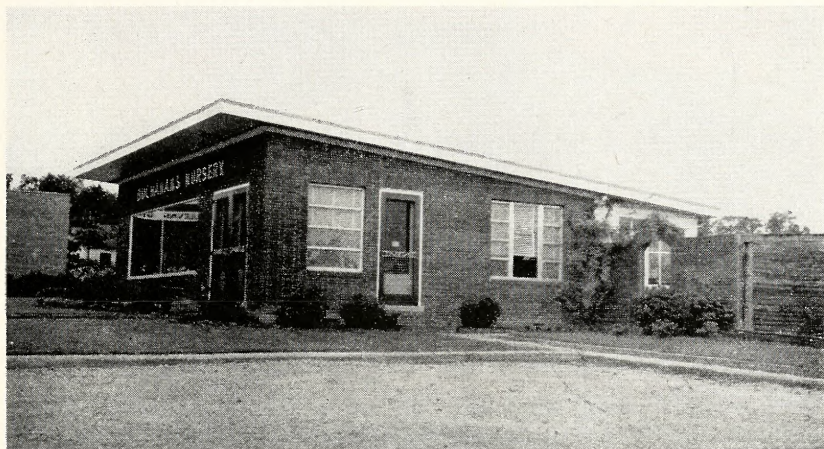
The use of fertilizer-insecticide mixtures has increased during the past two years.

The white-fringed beetle population has been drastically reduced due to this very effective program. Therefore, serious damage by this pest is not an immediate threat to North Carolina. Bladen County has been released from the quarantine because no infestation has been found there for several years.

JAPANESE BEETLE

The Japanese Beetle was first found in North Carolina in 1932, and the infested area was immediately placed under state quarantine. The seriously infested area in the state was placed under Federal quarantine in 1951, and includes the following fifty counties: Beaufort, Bertie, Buncombe, Cabarrus, Camden, Carteret, Chowan, Craven, Cumberland, Currituck, Dare, David-

son, Duplin, Edgecombe, Forsyth, Gates, Guilford, Greene, Halifax, Harnett, Henderson, Hertford, Hyde, Johnston, Jones, Lenoir, Martin, McDowell, Mecklenburg, Nash, New Hanover, Northampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Polk, Randolph, Rowan, Sampson, Transylvania, Tyrrell, Washington, Wayne, Wilson, Beaver Dam Township and city of Canton in Haywood County, and Blowing Rock township in Watauga County.



A modern North Carolina nursery sales yard.

The state, in cooperation with the federal government, spent over a half-million dollars in trapping and control work before the federal quarantine was extended into the state. This expenditure was an excellent investment in delaying severe damage in North Carolina. However, the Japanese Beetle has now spread to all sections of the state; and it is now financially and physically impossible to continue control treatments of several years ago, except in limited and strategic areas.

The cotton boll-weevil, the Mexican bean beetle and many other serious insect pests found all over the state, were formerly under quarantine. The State and Federal governments were forced to discontinue large scale control measures, thus placing control responsibility on counties, municipalities and individuals.

During the last two years limited foliage treatments have been applied around produce packing and shipping sheds in certain heavily infested areas. This treatment has also been

applied along highways, where the infestation is heavy, to prevent beetles from flying into cars and trucks. Airports in the Asheville-Hendersonville area have been treated. The Coast Guard and Navy furnished material for treating their grounds near Elizabeth City.

During the past two years approximately 30,000,000 plants, with a value of over \$1,000,000, were inspected and certified for movement from plant growing establishments in North Carolina.

EUROPEAN CORN BORER

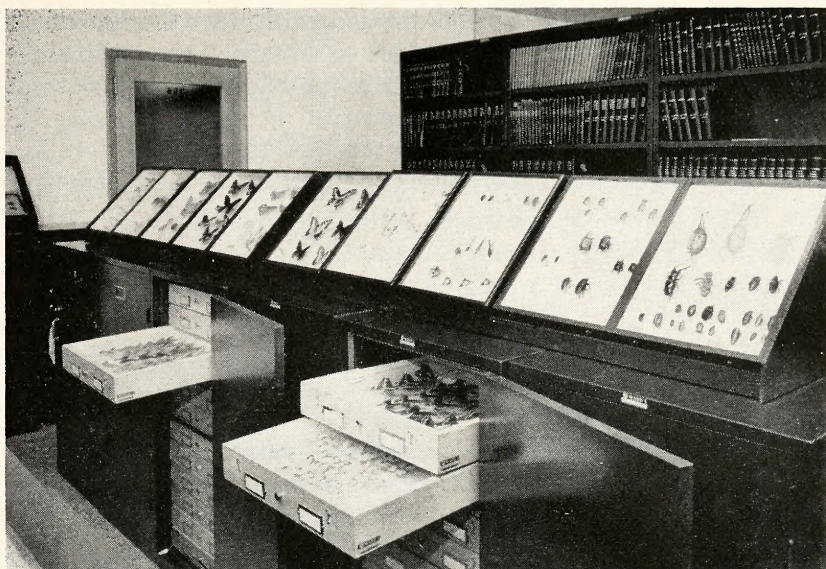
The European corn borer is now found in 48 counties of the State as follows: Alleghany, Alexander, Ashe, Avery, Beaufort, Bertie, Buncombe, Burke, Caldwell, Camden, Catawba, Carteret, Chowan, Clay, Cleveland, Craven, Currituck, Dare, Edgecombe, Gates, Haywood, Henderson, Hertford, Hyde, Iredell, Jackson, Lincoln, Macon, Martin, McDowell, Mitchell, Nash, Pamlico, Pasquotank, Perquimans, Pitt, Polk, Rutherford, Stokes, Surry, Swain, Transylvania, Tyrrell, Washington, Watauga, Wilkes, Yadkin and Yancey.

Thirteen new counties were found infested in 1952 and sixteen newly infested counties were found in 1953. Severe damage to corn has occurred in eastern North Carolina; slight damage to potatoes has been reported.

INSECT COLLECTION

The Entomology Division has in its care one of the finest insect collections in the nation. It is by far the most valuable in the South. The collection has been built up over a period of sixty years, and it is supplied almost daily with additions. This invaluable collection contains approximately 15,000 species and a total of nearly 1,000,000 insects.

Now housed in the new Agriculture Building Annex, the Division has for the first time adequate and suitable space to use and care for the collection. The specimens are in the process of being transferred from old wooden boxes to the very latest Cornell-type trays, which are enclosed in moisture- and pest-proof cabinets. The trays are removable for study at tables under windows which provide northern light. The new quarters also provide space for ready access to the Division's extensive entomological library.



North Carolina's valuable insect collection is now housed in new quarters and is being transferred to modern equipment. The top photo above shows how the insect trays fit into moisture- and pest-proof cabinets. Trays are removable for study, as shown in the lower picture. Windows facing north provide the best possible light for examining specimens.

Insect control work depends on accurate identification of an insect pest. Records of its previous occurrence are also invaluable. Entomologists from North Carolina and many other states freely consult the collection and records. Federal entomologists from Washington frequently have occasion to consult the collection and records. An experienced and well trained staff member has charge of the collection to insure proper care and classification of specimens.

CAMELLIA FLOWER BLIGHT

Camellia flower blight, a serious disease of camellia flowers, was first found in Brunswick County in 1949. The disease has spread into New Hanover, Onslow and Wilson counties. This Division carefully enforces a quarantine against infected properties in an attempt to prevent further spread. If this disease were not held under strict quarantine it might soon ruin all of the vast camellia plantings in North Carolina.

BEE WORK

North Carolina has approximately twelve queen breeders who are inspected each year, and issued a state certificate. All states require that the colonies of queen breeders be carefully inspected and kept under strict supervision due to the danger of spreading bee diseases wherever the queens may be shipped.

Beekeepers who move colonies within or outside the state must obtain a permit certifying that their colonies are free from bee diseases.

The last General Assembly provided \$3,000 for additional bee inspection work. Several experienced, practical bee keepers are employed during the spring and summer to aid beekeepers in cleaning up bee diseases in their colonies. This is a very valuable service and should be expanded as additional funds may be available.

WHITE-PINE BLISTER RUST QUARANTINE

The last General Assembly transferred the blister rust control work to the State Forester. This is in line with the policy of the federal government and many other states. This Division, however, continues its administration of the blister rust quar-

antique, which controls the movement of white-pine trees or *Ribes* plants into or out of the quarantine areas in western North Carolina. All such movements are closely controlled.

NARCISSUS BULB INSPECTION

Narcissus bulb inspection protects the valuable planting of North Carolina bulb growers from destruction by the bulb nematode. This serious pest would have destroyed the bulb growing industry long ago if it were not for the careful inspection service each spring by experienced staff inspectors. Several weeks are required to complete this work each year. In the 1953 season 91 acres on 11 properties were inspected. No nematodes were found. During the 1954 season 102 acres on 10 properties were inspected with no infestations located. All bulbs were also given a storage inspection.

ALFALFA NEMATODE

A new and serious pest of alfalfa in North Carolina was found for the first time in 1954. One field in Granville County was found infested. Research entomologists from North Carolina State College are working on this problem in cooperation with our staff. No quarantine action is considered feasible at present.

GROUND PEARL

A mealy-bug known as the "Ground Pearl" was found infesting lawn grass in Wilmington in 1954. Work on the problem is proceeding in cooperation with N. C. State College research staff. No quarantine action is contemplated at this time.

IMPORTED FIRE ANT

The Imported Fire Ant, a foreign introduction, was first found in the vicinity of Mobile, Alabama, over twenty years ago. This ant is a vicious attacker of farm animals, birds and man. Its mounds cause vast areas to be abandoned for cultivation.

This insect was found in North Carolina in 1952. Treatments have been promptly made and it is hoped that serious spread in this state may be prevented. This problem is being closely supervised.

GOLDEN NEMATODE

Federal inspectors, cooperating with this Division have found North Carolina free from this serious pest of potatoes. The Golden Nematode is a serious problem on Long Island. Everything possible is being done to prevent its spread to other states by cooperative inspections which are extremely tedious to carry out over a wide area.

LARGER STAFF NEEDED

The Division of Entomology badly needs two additional staff members, when funds are available. The duties of the Division have trebled during the last ten years and we are able to carry out only the minimum requirements of the laws and regulations pertaining to plant pests and bee diseases. We should have an inspector located at Salisbury and another at Greenville to effectively supervise our manifold activities in the Piedmont area and Eastern North Carolina. Present staff members located at Wilmington and Asheville cannot do effective work in such a large territory. Additional summer bee inspectors are also urgently needed.

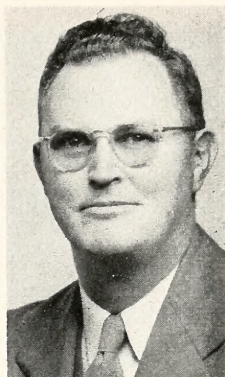
NEW QUARTERS

The Division of Entomology is most grateful for the excellent quarters in the new Annex Building. For the first time in a half century the Division has adequate space and modern equipment. The quarters and equipment of this Division are now second to none of any similar organization in the United States.

DIVISION OF MARKETS

JOHN A. WINFIELD

Director



JOHN A. WINFIELD

Plagued by extended droughts and uncertain economic conditions during the 1952-54 biennium, North Carolina farmers bolstered their efforts to offset as many of their production losses as possible by marketing their commodities in an orderly and efficient manner.

This is evident from the unprecedented demand for technical assistance which the Division of Markets experienced during the two-year period. Never before has there been such an earnest endeavor by farmers and market facility operators alike to seek advice on marketing problems and then follow it to the best of their ability.

Just as the production of agricultural products has increased in complexity, so has the marketing of these products. Time was when a farm was symbolized by a cheaply paid plowboy following a mule. Research and experience, however, have fashioned expensive and complicated farm machines which require men with training and intellect for their operation. Parallel advances in agricultural marketing have also brought demands for increased knowledge.

The fact remains, however, that the average farmer's operations are on too small a scale to warrant giving much of his time to marketing or to performing certain important marketing activities. While this results in one of agriculture's greatest marketing problems, it is only one reason why the ultimate in efficient marketing cannot be reached at a more rapid rate.

Actually, there is no one marketing problem. The farmer wants a marketing system which will give him the largest possible returns for the things he can produce. The middlemen have as their main objective the largest possible total net profit for the service they render. And the consumer wants a system which will provide adequate quantities and desired qualities of foods and fiber products at the lowest possible cost.

With this in mind during the 1952-54 biennium, personnel of the Division of Markets planned their work toward: (1) Im-

proving market methods and facilities; (2) reducing distribution costs; (3) narrowing the price spread between producer and consumer.

The first comprehensive efforts in the field of transportation were undertaken in July, 1953, with the employment of an experienced transportation specialist. While only one year has elapsed since the inauguration of this service, thousands of dollars have already been saved for North Carolina farmers through reduced transportation rates.

Because of the vastness and complexity of our agricultural marketing system, it is difficult to measure in terms of actual value the accomplishments made from year to year. It is apparent, however, that definite progress has been made in the marketing of many of our commodities.

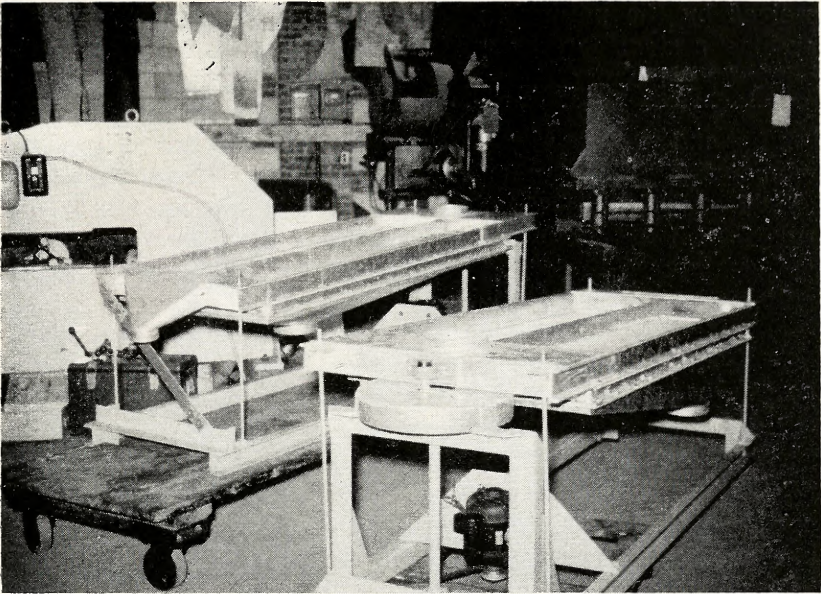
The fundamentals of efficient marketing are generally constant but changes in production practices or trends have a direct influence on marketing programs. Although many accomplishments were achieved in the field of agricultural marketing during the past two years, there is, of course, a continuing need for additional efforts along these lines. Several of the state's major farm enterprises are still expanding and, with each year's growth, the demands for marketing assistance likewise increase.

It is the desire of the Markets Division to continue its close working relations with other agencies and to meet these demands as quickly and as completely as possible.

Following is a summary of activities for the past biennium in the various phases covered by this Division, together with some discussion of problems and plans for the future.

COTTON

Since 1948, when the Division initiated its cotton marketing program and technical assistance to cotton gins, the percentage of rough preparation (ginning) has declined from a prior average of 17 per cent to an all-time low of .01 per cent in 1953. In addition to increasing the comparative value of the state's cotton crop, improved ginning has expanded the market outlets for North Carolina cotton and reversed the tendency of the spinning industry to avoid, or over-discount North Carolina growths. Normal and better preparation is a prerequisite to the preservation of fiber spinning properties in the severe pre-ginning proc-



Pneumatic equipment for handling corn meal was designed by Division specialists and is now being used in the manufacture of approximately 50 per cent of the corn meal produced in the state.

essing necessitated by machine and rough hand harvesting. Consequently, North Carolina is now in position to make a major contribution to the solution of the belt-wide problem of fiber quality.

Near the close of the 1950-52 biennium the cotton section installed a fiber testing laboratory equipped for testing strength, fineness, maturity and length uniformity. Laboratory test results released at 10-day intervals during the past two gin seasons from 15 selected producing and marketing points in the state have provided North Carolina with a marketing service normally confined to areas of greater production. The release and use of laboratory test data have helped develop a more effective and practical working relationship between cotton specialists and mill technicians. This cooperation is essential to any appreciable progress in cotton quality improvement.

The corn mill program, begun near the close of the last biennium, was designed to assist corn millers with processing and sanitation problems. According to the state chemist and commercial laboratories, North Carolina meal is improving, both in wholesomeness and in cleanliness. At least two items of needed equipment designed by Division specialists have been well

received by the milling industry. One of them, a pneumatic handling system, is now used in the manufacture of approximately 50 per cent of the meal produced in the state.

Other requests for technical assistance have come from seed cleaning and grading plants, feed mills, oil mills, grain handlers, and manufacturing plants using pneumatic conveying equipment.

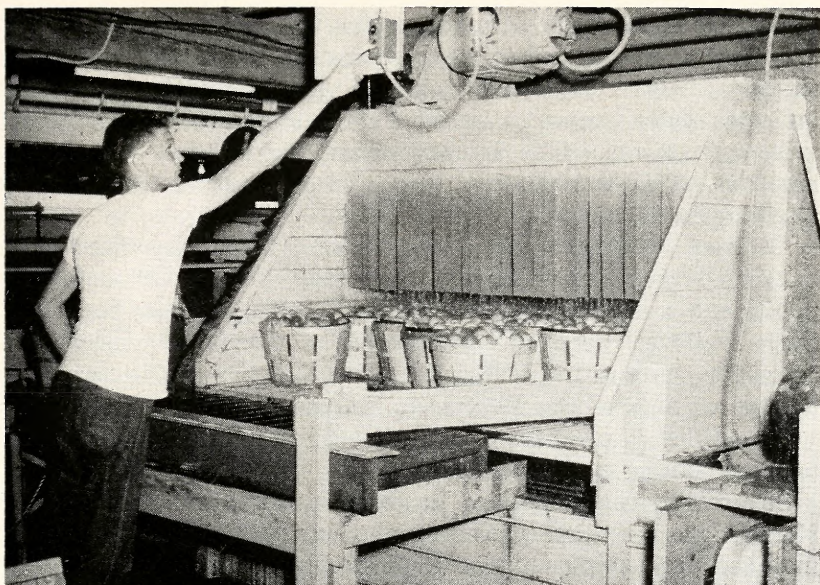
Field procedures for technical assistance are practically the same for all pre-marketing processing, regardless of the commodity, and may be defined as "on the spot" attention to specific problems.

In lending technical assistance to pre-marketing processing our specialists made 1,100 visits to cotton gins, 650 to corn mills, 100 to cotton mills and cotton merchants, and 50 to oil mills, seed cleaning and treating plants, feed manufacturers and grain elevators. In addition to numerous meetings and conferences with other agricultural agencies, all proper encouragement and assistance was given to trade associations in their organized support of state agency programs.

Practically all technical assistance programs offered unusual opportunities to promote better inter- and intra-interests relations and mobilize industry's support and cooperation in state agency programs. The ginner trade organizations in Carolina and Virginia began as a Department project incident to technical assistance to cotton gins. Approximately one-half the ginner in the state are associated in county group organizations and meet monthly, functioning largely as agricultural groups.

Working with corn mills gave Division specialists an opportunity to organize the Western Millers' Association and to promote their cooperation with the Eastern group and the recently organized Grain Dealers' Association. The resulting improvement in working relationships between industries and state agencies, and the co-ordination of state agency programs, have been so effective that credit for any progress must be shared with all agencies and interests concerned.

Cotton production in North Carolina, apparently, has leveled off at approximately 750,000 acres, thoroughly integrated in a well balanced and diversified agriculture. The positive attitude of the several raw cotton interests toward the future of cotton in the state is reflected in the objectives of the Cotton Promotion Committee and the industry-sponsored Cotton Quality Improvement Committee.



Precooling peaches before shipment brought growers several thousand dollars in extra returns.

Cotton is still the main source of livelihood for many North Carolina families and it occupies an important place in our diversified agriculture. But with North Carolina's relatively small acreage as compared with many of the other states, additional efforts are needed to assist farmers in overcoming certain marketing disadvantages. These will be met by continuing to improve the pre-marketing processing of cotton and by increasing fiber test studies in the laboratory.

North Carolina's rapid development as a corn growing state is accomplished by an equally gratifying expansion of the corn marketing and processing industries. The corn milling industry, in particular, recognizes vast possibilities of expanded marketing outlets, both within and without the state.

FRUITS AND VEGETABLES

One of the Market Division's objectives is to assist producers and shippers of fresh fruits and vegetables in an aggressive marketing program that will protect and expand North Carolina's rightful share of her logical markets. The saleable products which can be converted into cash determine the degree of material progress attained. Marketing facilities and services play

a most important role in securing the value of these cash sales.

Information and assistance to producers, producer groups, and shippers were emphasized during the biennium. Seasonal bulletins were prepared giving information as to anticipated volume, crop conditions, harvest dates, and location of the commodities. This information was mailed to about 2,000 buyers annually in 17 states.

Division specialists were instrumental in getting one of the nation's largest pecan buyers and shellers to establish buying points and a shelling plant in the state during the last biennium. Such facilities were greatly needed to furnish a ready cash outlet for pecan growers. This firm purchased more than a million pounds of nuts of the 1953 crop. In addition, one of the east's well established processors was encouraged to establish a modern pepper canning plant at Dunn.

Several thousand dollars in extra profits were realized by North Carolina peach growers, who during the past two years, installed pre-cooling units in their packing sheds to increase the shipping quality and shelf-life of their fruit.

Striving for more efficient marketing through more and improved facilities, Division specialists assisted in the organization and initial operations of four new produce markets within the state.

Other assistance was rendered by: (1) Procuring approximately 12,000 bushels of the best sweet potato seed stock available for North Carolina growers; (2) inspecting seed Irish potatoes received by producers and handlers to determine if the seed stock met the requirements of the Seed Potato Law; (3) helping peach and potato producers make plans for holding a referendum which would give producers the right to assess themselves a specific fee to raise funds for advertising and promoting sales of their products; (4) helping apple growers in carrying out their plans for promoting a more uniform grade and pack by means of central packing houses and cold storage facilities; (5) aiding peach growers in developing and carrying out a successful advertising program through radio, television and press releases.

Inspection and certification work was again a major activity of the Division specialists. Fruits, vegetables, potatoes and peanuts are largely bought and sold on the basis of official grades, without which there would be no dependable basis of

useful market price information and orderly trading. The application of the grades must necessarily be by impartial and well trained personnel. During the past two years 12,635 carlots of fruits, vegetables and cleaned and shelled peanuts were officially certified at various buying stations. In addition, the following quantities of produce were inspected at auction markets: 355,435 bushels of snap beans, 122,647 crates of corn, 537,497 bushels of cucumbers, 850,421 bushels of peppers, 169,056 crates of strawberries, 35,000 bushels of squash, 1,445,939 bushels of sweet potatoes, and 25,007 containers of miscellaneous products. Receiving market inspections totaled 774 carlots for wholesalers and 13,465,134 pounds of various fruits and vegetables at or for delivery to military installations or state and federal institutions.

The annual cash value of the fresh fruits and vegetables produced in North Carolina ranges from about \$60,000,000 to \$75,000,000 depending upon production and prices received by farmers. Our continuing shift from a seller's market to a buyer's market is increasing the effects of consumer preference on commodity prices. Realizing that the ultimate purpose of production is consumption, Division specialists are working toward uniformity of grade and pack that will meet with greater consumer acceptance and thus enable North Carolina produce to not only hold its place in the markets but meet with increased favor.

TOBACCO

The marketing of tobacco in North Carolina is a process which has a far reaching glamour, but along with the glamour and fascination of selling flue-cured and burley tobacco at auction comes an endless chain of market problems.

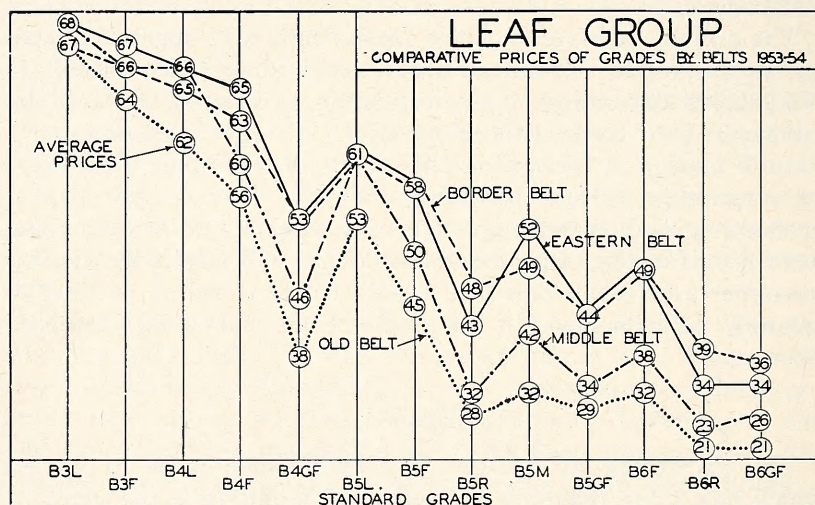
One of the old problems which has existed since the introduction of standard grades is the grower's lack of knowledge and understanding of the standards. This makes it difficult for him to recognize the grades under which his tobacco is sold and to sort tobacco on the farm so that it will meet the market demand of domestic and, especially, export buying companies.

Another marketing problem is created in the ever-changing requirements and demands of the buying companies, which are due in part to changes in consumer preference, scientific research and medical statements.

New varieties of disease resistant tobacco introduce still another problem. Some of this tobacco has different characteristics from the old varieties, and requires a different method of handling in order to properly meet standard grades and buying company requirements.

Extreme droughts and other abnormal growing seasons add to the chain of problems. These problems, along with others, create a marketing situation which results in a loss of thousands of dollars to tobacco growers each year.

With these problems in mind, the Division specialists planned their work during the 1952-54 biennium around such services and activities as would facilitate the preparation and marketing



of flue-cured and burley tobacco in the state. A portion of this work was made possible through cooperation given by the United States Department of Agriculture under the Research and Marketing Act.

During this biennium specialists conducted 198 meetings dealing with farm sorting and other preparation and marketing practices. These meetings were conducted in cooperation with vocational agriculture teachers, county agents, warehousemen, and other farm organizations in 45 flue-cured and 10 burley counties. A total of more than 4,500 adult farmers, veteran farm trainees, and FFA students participated. All of the



These hands of tobacco show the contrast between good and poor sorting for market. The hand at the left is uniform in length, quality and color, while the other two comprise leaves of mixed characteristics.

growers attending were assisted by specialists in improving their farm sorting and other preparation and marketing practices to bring about more uniformity in tobacco sold on warehouse floors. Special emphasis was placed on the handling of export grades, which are generally very poorly prepared for market, so these grades could compete favorably with the same grades of flue-cured tobacco produced by our foreign competitors.

Several demonstrations were held on the warehouse floors, where piles of poorly sorted tobacco were reworked and resold at a higher price. For example: a pile of tobacco on the Rocky Mount market graded N2L was bid in at \$4 per hundred; the pile was reworked and the next day it was graded P5F and resold for \$42 per hundred. More of this type of work is contemplated.

The fourth and fifth annual issues of the *North Carolina Tobacco Report* were prepared and distributed to about 6,000 tobacco growers, warehousemen, dealers, agricultural agencies, libraries, radio stations, and individuals and organizations interested in tobacco marketing.

As required by a state law, the Division issued a monthly report of tobacco warehouse sales. These reports were distributed to a mailing list of about 1,100, including growers, members of the industry, press, radio, and civic and farm organizations.

Early in 1953, assistance was furnished a farmer group in Robeson County in the organization of a cooperative warehouse. Later, a joint meeting of the four cooperative tobacco warehouses in the state was held, and specialists gave assistance in co-ordinating their operating policies and practices.

A considerable amount of time was devoted to organizing farmer opposition to the graduated tax on cigarettes. Tobacco growers of five states made appearances in protest before the House Ways and Means Committee. A specialist of the Tobacco Section acted as secretary of a steering committee in arranging witnesses and testimonies at the hearing held on March 25-26, 1953. As a result of the hearing, the graduated tax was defeated.

Assistance was given growers from nine northwestern counties in organizing plans for the Northwestern Development Association. It was organized for the purpose of encouraging growers to plant full allotted acreages of flue-cured and burley tobacco in order to increase farm income in these counties. Work was also done with this association in arranging for experimental tobacco plant beds which would make plants available to growers who had a plant shortage.

Further assistance was given the Chambers of Commerce and warehousemen in Greensboro, Asheville, Windsor, and Ellerbe in solving buyer and warehousing problems.

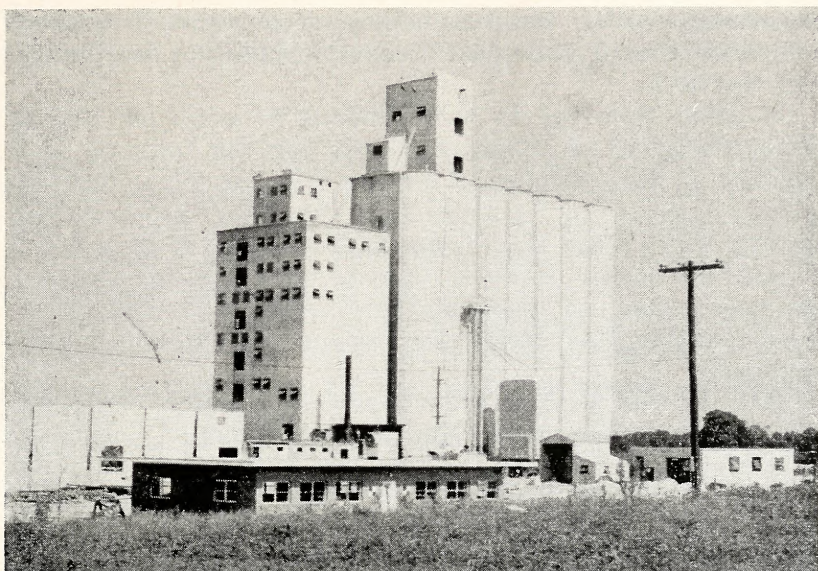
Assistance was also given to the markets at Kinston, Wilson, and Lumberton in supplying marketing data in connection with legal actions that were taken on these markets.

Specialists of the tobacco section performed other varied services for growers, warehousemen, and other segments of the tobacco industry in carrying out the long range plans of the program, and in performing their duties during the 1952-54 biennium.

GRAIN

North Carolina produces a total of approximately 100,000,000 bushels of corn, oats, wheat, soybeans, milo, barley, and rye; and has a potential production of 120,000,000 bushels within the next five years. This production valued at \$1.50 per bushel is worth \$150,000,000 to the farmers of North Carolina.

To offset as much as possible of the annual loss which farmers and grain handlers of the state have been experiencing as a



One of the new grain storage and handling facilities constructed during this biennium.

result of insufficient storage, increased efforts were made toward encouraging and assisting in the planning for additional storage facilities.

During the past two years, North Carolina grain firms constructed 1,170,000 bushels of storage space with 5,300 bushels-per-hour dryer capacity. This brings the total improved on and off the farm storage capacity in the state to 8,652,100 bushels. Farmers and grain handlers of the state are losing \$22,500,000 annually because of insufficient storage. This loss would build approximately 22,000,000 bushels of grain storage.

The Division's grain section will continue to give technical assistance in planning new storage facilities and remodeling of old facilities to store and market grain more efficiently. Eighteen firms built new grain storage and marketing facilities during the past two years, and seven more were in the planning stage at the end of that period. Twenty firms were given technical assistance in remodeling their old facilities to more efficiently dry, store, fumigate, and market grain. Remodeling includes larger dump pits for bulk grain, power hoists for unloading trucks, larger turning equipment, more and larger elevator legs,

cleaners and scales. Progress in elevator construction has been delayed because of inadequate sources of capital for construction and operation.

Changing from bag to bulk handling of grain has already meant thousands of dollars to North Carolina farmers. Bulk handling is more economical because bags are eliminated, less labor is needed and less time is lost in the storage and marketing facility, which mean an increase to the farmer of from five to 10 cents per bushel. However, there is still a need for encouraging more widespread adoption of this method and to assist elevators in adapting their facilities to accommodate this type of grain handling.

Realizing that farmers, grain handlers, processors and county agricultural workers need additional information on storing and marketing grain, the grain section, cooperating with the North Carolina Extension Service, participated in 40 county grain schools and a one-week school at North Carolina State College. These were attended by farmers and buyers, and emphasis was placed on storing, drying, fumigating, grading, and marketing of all grain. The grain section, cooperating with North Carolina State College, conducted 14 grain marketing courses for agricultural students and elevator operators during the past two years.

Requests of farmers and grain handlers to buy and sell grain on a quality basis demanded a program of training personnel at grain marketing facilities to grade grain under the United States Grain Standards Act. Sixty-two grain grading demonstrations were held in addition to giving individual assistance in grading at elevators, mills and corn shelling stations.

The work of the grain section in furthering improved storage and handling facilities, and in training personnel to grade grain, have brought about a marked improvement in the quality of grain sold and processed for human and animal consumption. This is worth thousands of dollars to the people of North Carolina.

Technical assistance in hay grading was given to 32 dealers during the emergency movement of hay into drought-disaster counties. Buying and selling on the basis of U. S. Grades were required under the emergency hay program. Through the use of U. S. Grades, dealers were able to get 95 per cent of the hay equal to, or better than, the grade ordered. The higher quality hay has been worth an additional \$40,000 to the state's farmers.

Buying and selling on a grade basis has made farmers and dealers more conscious of quality and feeding value of hays.

LIVESTOCK

The primary responsibility of the Division's livestock specialists is to assist producers in the marketing of all classes of livestock to feeders and processors. Their services are not confined to this alone, however, as assistance is also given to retailers and consumers of livestock products.

Increasing numbers of livestock continued to bring about a greater need for better marketing facilities during the last biennium. A greater demand for live grading of stocker and slaughter cattle also resulted.

Continuing to work closely with other agricultural agencies, Division specialists assisted in grading and selling more than 7,000 head of feeder calves in 27 organized sales during the last two years. Calves marketed through these sales and sold in



Livestock specialists graded approximately 7,000 head of feeder calves during the 1952-1954 biennium and assisted in organizing and conducting 27 sales.

uniform lots brought producers an average of two to five dollars per hundred more than local sales averaged for feeders of equal quality.

Assistance was given in marketing within the state more than 5,600 head of fat cattle, most of which were sold to local packers on a grade and yield basis.

Seeking to improve the quality of commercial cattle produced in the state, Division specialists assisted in conducting 41 purebred cattle sales, in which approximately 3,100 head of cattle were sold. In addition, assistance was given in planning and conducting 28 purebred swine sales and five purebred ram sales.

The revolving fund was used to purchase 1,250 western ewes



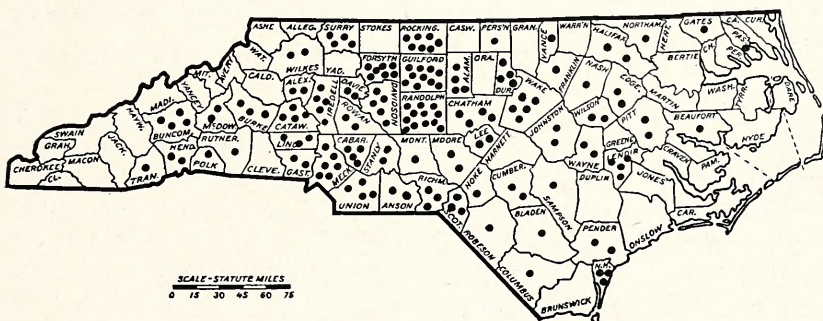
Grading dressed beef for North Carolina packers is a new service which was initiated in February, 1953. The official NCDA grade stamp had been placed on more than 15,000 beef carcasses by the end of this biennium.

for distribution to commercial sheep producers throughout the state. Approximately 23,000 lambs and 700 yearlings and old sheep were marketed through 55 lamb pools organized by Division specialists. Lambs consigned to the pools were graded choice, good, medium, common and culls and were sold in carload lots to the highest bidder. Pool sale prices averaged from five to 15 per cent above small-lot sales at local markets.

Special assistance was also given sheep producers in handling, pooling and selling 325,000 pounds of wool. Assembly points for the wool pools were Washington, Winston-Salem, Sparta, Durham, Boone, Newland, West Jefferson, and Salisbury.

An additional service in livestock marketing was undertaken by the Division in February, 1953. This involved the grading of beef and veal carcasses at leading packing plants throughout the state. By the end of the biennium, the official NCDA grade had been placed on 15,027 beef carcasses weighing approximately 6,500,000 pounds, and 1,940 veal carcasses weighing 242,423 pounds.

Lack of improved marketing facilities is still an obstacle in our expanding livestock industry. Marketing specialists plan to devote much of their time in the immediate future toward correcting this situation. Additional efforts will also be required to meet the increasing demands for grading service, both live grading of stocker cattle and grading of slaughter cattle for sale.



Locations of North Carolina poultry processing plants.

POULTRY AND EGGS

The ever increasing demand by consumers for high quality poultry and poultry products, along with a greater supply of competing foods, were largely responsible for the tremendous interest and progress made in the marketing of these products during the biennium.

The poultry section of the Division of Markets made a special effort to assist producers, processors, and distributors in assembling, processing, and distributing poultry and eggs to meet consumer demands. This service consisted of advising

processors and procurers of poultry and poultry products as to locations of supplies of these commodities within the state, the processing and packaging demands of consumers where the products were to be sold, and the type and method of distribution that would best fit the consuming area.

North Carolina's poultry processing industry has gained national recognition during recent years for its broadness and efficiency in operation. Division specialists are to be credited for much of the progress made by this industry. Processors were given technical assistance and advice as to improved methods and techniques of processing and packaging in order to meet the consumer demand. A finished product of high quality was stressed, along with added emphasis on sanitation. These improved methods of processing, packaging and distribution adopted by many of our processing plants, and their efficiency of operation, are making it possible for consumers to increase their purchases of quality products at reasonable prices. The entire poultry industry benefited as a result of these services.

Special help was given to 12 poultry processors in training their personnel in the technique of processing and packaging poultry.

Specialists in the poultry section worked very closely with wholesalers and retailers of shell eggs throughout the state in order to improve the quality of the eggs being offered for sale to consumers in retail outlets. This service consisted of determining the quality of eggs offered for sale by actually candling and grading the eggs at the point of sale. Retailers were shown the quality of the eggs and were informed of the importance of properly packaging, displaying, and caring for them. This service program was conducted in 52 towns, in which 1,326 inspections were made.

Approximately 136 conferences were held with retail store personnel, at which the proper way of packaging and handling eggs was discussed. Retailers reacted very favorably to this service and a decided improvement in the manner and methods of handling eggs in retail outlets was noted. Approximately 90 per cent of the larger retail outlets and 50 per cent of the smaller outlets now keep their eggs under refrigeration. This represents a decided increase in the number of eggs being held under refrigeration.



Checking egg quality at wholesale and retail levels is an important function of the poultry section.

Ten official egg grading stations, operating under the Federal-State egg grading program, graded 2,473,635 dozens of eggs during the biennium. Progress in the program lagged somewhat because of competition from unofficial grading stations. In brief, officially graded and identified eggs must meet certain standards of classification whereas unofficially graded eggs do not.

Additional progress in egg marketing can be measured by the increased number of dealers who candled and graded eggs during the biennium, even though they were not graded according to Federal-State standards. Several egg grading schools were held at Durham, Clinton, Lumberton, and Whitakers. There were 42 people trained to grade eggs at these schools. Help was rendered to producers and handlers in setting up egg marketing facilities. These additional facilities should help greatly in the marketing of our expanded egg production.

Personnel of the Poultry Section continued to render valuable assistance to poultry processors in remodeling and enlarging their processing plants. Plans were drawn for equipment and facilities in five new processing plants and fourteen existing plants.

Resident graders in the four official plants that operated during the biennium graded more than 15,000,000 pounds of poultry. In addition, more than 2,000,000 pounds of poultry not processed in official plants were graded by personnel of this Division for private and governmental institutions. Poultry specialists also inspected 651,690 dozens of eggs on a fee basis.

A bulletin for barbecuing chickens and turkeys was prepared and made ready for print by personnel of this section. It is contemplated that 25,000 copies of this folder will be distributed to consumers through the cooperation of the North Carolina Poultry Processors Association and individual processors within the state.

Broiler production increased during 1952 and 1953, and the market was fairly favorable from July of 1952 through November 1953. During the early part of December 1953, however, a surplus condition arose. Personnel of this section, in cooperation with members of the North Carolina State Poultry Council and specialists of the North Carolina State College Extension Service, immediately inaugurated a surplus removal program. When contacted, radio and television stations and newspapers throughout the State assured their cooperation. The price situation eased somewhat about December 20 and the all-out broiler promotional program was not carried through. However, publicity through radio, television, and the press caused the market to rise about two cents. It was gratifying to know that the press and radio stood ready to help us as they have always done in the past.

As broiler production increases in North Carolina, it will become more important that our processors be in a position to meet competition from other producing sections in selling poultry in the metropolitan consuming areas. We are rapidly reaching the capacity of our marketing within the state. Personnel of the poultry section realize that annually a high percentage of our poultry must seek markets elsewhere, and are of the opinion that it is only a matter of time before poultry must be processed in plants meeting the minimum rules and regulations governing the processing of ready-to-cook poultry in order that it may be moved into interstate commerce. Technical assistance will be given to our very cooperative processing industry in order to help them meet this challenge.

DAIRY

Auditing dairy plant records to determine if proper classified payments were made to producers in accordance with regulations under the Milk Audit Law was an important part of the work of the Dairy section during the 1952-54 biennium. As milk production continued to increase, more plants bought from producers on a usage classification and this placed more importance on the making of frequent audits. Audits in some cases disclosed underpayments and corrections were made to producers in accordance with the regulations.

This section also worked in close cooperation with the North Carolina Milk Commission during the past year in order to carry out the work of both the Department and the Commission regulations. The Milk Commission was created by the 1953 Legislature.

Marketing personnel worked with plants to effect proper accounting and application of a uniform classification plan to milk producers. Under the classification plan classes of milk are prorated in a manner that is equitable to all producers and does not give special treatment to any individual or group.

During months when an excessive supply of milk existed in an area, dairy marketing specialists assisted in the movement of milk to deficit areas in Eastern North Carolina. With considerably increased milk production in Piedmont and North-western North Carolina, movement to deficit areas resulted in increased income to producers in these sections. It is anticipated that North Carolina's milk production will soon be great enough to supply the fluid needs for North Carolina during practically all months of the year. There will still be a need, however, for the movement of milk from surplus to deficit areas in order to obtain the best market for North Carolina producers.

Milk production, sales, prices paid for milk, and other valuable statistics are compiled from reports submitted by all distributors. This information is released quarterly to milk producers and the dairy industry.

Promotional work to increase consumption was conducted by personnel of the Division in schools, Parent-Teachers Associations, college groups, civic clubs, lunchroom workshops and others. During the biennium 312 talks stressing the importance of milk in the diet were made to approximately 36,600 people. Con-

**NUMBER OF GRADE A PRODUCERS, PURCHASES OF GRADE A MILK,
IMPORTS, AND SALES OF FLUID MILK AND CREAM
(By Months)—July 1952-June 1954**

Month	Number of Grade A Producers		Purchases of Grade A Milk From Producers By Distributors (Thousands of Lbs.)		Imports Of Fluid Milk By Distributors (Thousands of Lbs.)		Sales of Fluid Milk & Cream To Consumers By Distributors (Thousands of Lbs.)	
	1952-3	1953-4	1952-3	1953-4	1952-3	1953-4	1952-3	1953-4
July.....	4,528	4,797	43,355	52,168	2,802	0	40,824	44,980
August.....	4,571	4,856	44,270	51,050	3,338	817	44,404	45,821
September.....	4,581	4,906	42,854	49,062	4,837	2,838	46,959	48,286
October.....	4,561	5,076	41,970	50,606	7,145	3,239	48,963	50,892
November.....	4,599	5,066	40,284	50,049	6,270	1,921	46,177	46,377
December.....	4,664	5,124	43,094	53,702	4,719	1,010	46,594	46,379
January.....	4,742	5,187	46,434	55,593	2,955	1,196	46,468	48,118
February.....	4,727	5,219	44,458	52,728	1,737	666	43,150	43,697
March.....	4,744	5,208	50,960	58,269	810	370	45,391	47,862
April.....	4,767	5,163	55,412	60,198	370	14	46,489	47,402
May.....	4,790	5,154	57,083	62,290	0	0	46,652	46,424
June.....	4,827	5,185	51,621	55,959	0	0	42,349	42,460

**NUMBER OF GRADE A PRODUCERS, PURCHASES OF GRADE A MILK,
IMPORTS, AND SALES OF FLUID MILK AND CREAM**

1948 - 1953

	1948	1949	1950	1951	1952	1953
Number of Grade A Producers (As of December 31 each year)	2,544	3,387	4,053	4,368	4,664	5,124
Annual Purchases of Grade A Milk From Producers by Distributors (Thousands of Pounds)	236,361	339,827	426,966	485,407	522,803	612,605
Annual Imports of Fluid Milk By Distributors (Thousands of Pounds)	78,799	53,007	30,001	27,883	42,719	15,697
Annual Sales of Fluid Milk And Cream to Consumers By Distributors (Thousands of Pounds)	334,580	360,539	421,420	478,318	535,190	553,236

centrated efforts were made in about fifteen counties, mostly in Eastern North Carolina. In addition, special promotional material was furnished to these groups and news releases were provided to newspapers.

Specialists worked with many allied groups in promoting milk through June Dairy Month activities, the American Dairy Association, dairy expositions, exhibits at the State Fair, and other places.

Although the dairy statistics show considerable increases in milk sales for recent years, there is a continuing need for promotional work to increase per capita consumption for milk and milk products.

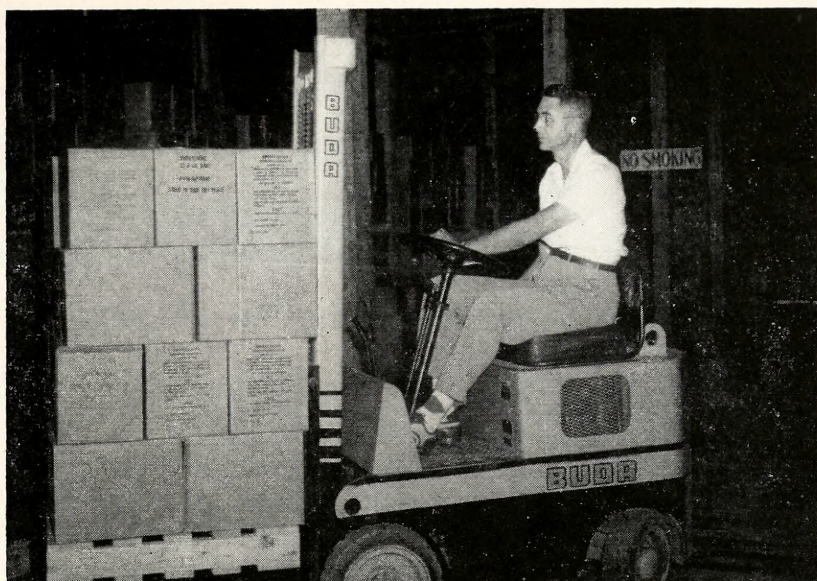
The upward trend in milk production and sales in recent years in North Carolina is shown in the statistical tables on pages 86 and 87.

COMMODITY DISTRIBUTION

The Division acts as a distribution agency in North Carolina for foods made available by the United States Department of Agriculture. Commodities are distributed to agencies falling within the following categories: (1) Public Schools serving children of high school grade or under, and non-profit private schools of high school grade or under, operating lunchrooms under the School Lunch Program; (2) public and private welfare agencies that serve or assist persons in need; (3) institutions, provided they are nonpenal and charitable; (4) summer camps and child care centers; (5) emergency and disaster relief organizations.

During the 1952-54 biennium agreements were executed with 176 county and city boards of education to cover commodities distributed to children in 1,616 schools serving 454,096 meals daily, 124 institutions serving meals to 22,816 inmates daily and 35 summer camps serving 4,597 children daily. Commodities are purchased by the United States Department of Agriculture and fall into two general groups: (1) Section 5 commodities, purchased under provisions of section six of the National School Lunch Act; (2) Section 32 commodities, purchased with funds provided under section 32 of the Agricultural Adjustment Act.

The latter group includes the various price-support and surplus-removal program of the USDA. These foods are made available to the state and the Markets Division acts as a representative of the various participating agencies in the state in obtaining their pro-rata share. It is the responsibility of the Division



Foods received for distribution to schools and charitable institutions being stored for later use. More than \$10,000,000 worth of commodities were distributed during this biennium, the bulk of which was delivered direct from railroad cars to the participating agents.

to determine the eligibility of the various agencies applying for commodities and to negotiate agreements with those who apply for participation in the program. Allocations of foods are made to the various recipient agencies on the basis of the number of meals served daily.

Other factors taken into consideration in making such allocations include the amount requested by the recipient agencies, the quantity of food which the applicant may have on hand, and the rate of use by the applicant as shown from previous experience.

The majority of foods distributed are shipped in carload lots and are distributed to the participating agencies from the freight car door. Many of the participating agencies act as a representative of the Department in unloading and distributing the foods received in this manner.

An increasing amount of warehousing is being done by this Division. Warehousing, both cold storage and dry storage, is rented from the State Hospital at Butner to store foods received during the summer months when the schools are closed and por-

tions of large allocations on which immediate delivery must be taken.

Food received in the fiscal year 1952-53 totaled 272 carloads, of which 101 came under the School Lunch program and 171 were Section 32 "surplus" commodities. The total represented a wholesale value of \$3,573,851.

Receipts under each of these classes almost doubled in 1953-54, when 243 carloads of the School Lunch foods and 270 carloads of the "surplus" commodities made a total of 513 carloads with a wholesale value of \$6,564,988. These make a grand total for the biennium of 785 carloads of food, valued at \$10,138,839.

An item of great interest is the fact that of foods distributed during this biennium, 41 carloads of frozen turkeys were grown, processed, sold and consumed in North Carolina. Of course other states also received a great many of the frozen turkeys purchased from North Carolina. Another product distributed which originated within the State was five carloads of cottonseed salad oil.

COOPERATIVES

Farm cooperatives probably made greater operation progress during the last two years than during any other period. Nine new cooperatives were organized along with six educational type organizations such as fairs, rural fire departments, and animal breeding associations. These associations were assisted by the Division specialist in preparing charters, by-laws, and marketing agreements. Several existing organizations were aided in filing amendments to their charters and by-laws.

The largest of these organizations was the Cooperative Warehouse, Inc., at Lumberton, which has approximately 800 members. This cooperative has built a warehouse with floor space of more than four acres, and has completed one year of successful service.

Cooperative and mutual organizations are required by North Carolina state law to report their operations to the Division of Markets each year. These reports are analyzed and constructive suggestions are made for future operations. These reports are kept on file in the Division offices.

The cooperative section, working with the Farmers' Cooperative Council of North Carolina, compiled and published a directory showing by counties the cooperative types of organization



The cooperative tobacco warehouse in Lumberton, North Carolina, has a floor space of more than four acres. This organization has approximately 800 members.

represented in North Carolina. Charts were made showing the number and location of general types of organization now carrying on cooperative work in North Carolina.

MARKET NEWS

Major objectives in the Market News Service during the 1952-54 biennium were: (1) More adequate coverage of commodity prices to include new or expanded areas of production; (2) Provision for a better informed public through improved dissemination.

Meeting in part the need for more adequate coverage, the service was expanded to include five additional points from which prices were obtained on poultry; two on eggs, cotton and truck crops; four on grain and ten on livestock.

Increased efforts for better dissemination were made through personal visits to radio stations over the state to discuss with the management the amount and type of material available for their use. As a result of the approximately 150 visits, many of the stations added daily market news to their schedules. Daily market news information is now being made available to them quickly and accurately over the facilities of the two major wire services in the state. Prices are released on tobacco, cotton, peanuts, truck crops, pecans, livestock, corn, soybeans, wheat, oats, milo, and poultry and eggs.

To provide daily market price information as accurately and efficiently as possible, the Market News Service continued to maintain two permanent offices. Information for the eastern and piedmont counties was compiled and edited in Raleigh, and for the western counties in Asheville.

Special services on daily shipping point prices were made available to peach and potato producers during harvest season through temporary offices located at Southern Pines and Washington.

An average day at the two permanent offices would include approximately 50 telephone calls from producers and handlers of farm products. Their requests for information are met by reports received over the approximately 8,000 miles of leased wire which connects Raleigh and Asheville with leading terminal markets throughout the nation. Information received over the leased wire, along with that obtained from local producers and handlers of farm products, is used in preparing seven daily radio scripts and nine press releases. Most of this same information is used in more than 1,500 market news bulletins which are prepared each day and mailed to interested persons upon request.

TRANSPORTATION

Probably the two most important factors affecting agriculture are weather and transportation. Transportation with respect to agriculture embodies many fields of activity including rate investigations, cases before regulatory bodies, the general level of rates, service, proposed legislation, contacts with national and state regulatory bodies and farm and civic organizations.

Numerous investigations as to the level and competitive nature of rates on agricultural products produced and sold in North Carolina were made during the past year. Two of the most prominent involved rates on peanuts and fertilizer.

One case in particular materially affected the selling price of fertilizer to North Carolina farmers which, of course, is extremely important in this state, the largest consumer of fertilizer in the nation. This case involved a proposed drastic increase in switching charges at Wilmington, from which port fertilizer is ordinarily distributed in large quantities for use in the state. The final decision in this case by the Public Utilities Commission of North Carolina held to a minimum the rather drastic increase proposed by the railroads.

The rates on grain within Southern territory have been comparatively much higher than the rates on grain within Western Trunk Line to Trunk Line and New England destinations. As this report is written there is pending before the railroads a general revision covering rates on grain in the South which may

be granted without resort to formal complaint and regulatory action.

Co-related, but not necessarily a part of the same adjustment, has been action with respect to coastwise and export grain rates from the South to the ports of Morehead City and Wilmington. The competitive nature of the two ports and the service to the respective ports by different railroads has entailed certain conflicts and variances of commitments which are being analyzed and worked out to the best advantage of the State of North Carolina. Export rates on grain to Morehead City and Wilmington, may eventually determine the actual location of North Carolina's first export grain elevator. This matter has been handled co-operatively with the State Ports Authority, the various railroads, grain interests, and the City of Wilmington with current prospects very bright for the eventual establishment of such an elevator in the state.

In the latter part of 1953, 21 counties in North Carolina were declared disaster areas because of the drought situation. The transportation section materially assisted in the establishment of drought relief rates by the railroads whereby hay was shipped into the state at a 50 per cent reduction in freight rates.

In cooperation with the State Port Authority, the City of Wilmington and the Public Utilities Commission, competitive textile rates were established from North Carolina, South Carolina and Georgia origins to the port of Wilmington. Prior to the establishment of these rates, practically all textile materials from the origins referred to were exported via the ports of Charleston, Savannah, and Norfolk. The availability of this tonnage will assist in the establishment of regular ship sailings from the port of Wilmington.

A survey was made to determine what, if any, concessions are given to agriculture by the Interstate Commerce Commission and the 48 state regulatory commissions. This survey indicated that proper recognition has not been given to agriculture and that steps should be taken to bring about the transportation relief properly due farm products.

A survey has been completed to determine the general level of motor carrier rates in North Carolina, and to compare this state's motor carrier rate situation with the 47 other states. Coupled with this investigation has been a survey of the accounting and financial reporting of motor carriers, which indicates a

lack of specific information with respect to the intrastate financial situation of common and contract motor carriers. Further action is contemplated which, it is hoped, will alleviate this situation.

One of the most important functions of the transportation section is the work with respect to proposed or suggested legislation which directly affects the transportation of agricultural products. Necessary reports and recommendations were made through proper channels to Senatorial and Congressional representatives on all important proposed legislation. Among the national bills pending is the truck leasing bill involving the curtailment of truck leasing to such limited circumstances as will directly injure agricultural interests. Opposition has been expressed to the so-called "time-lag" bill sponsored by the railroads and necessary information has been furnished on another bill proposing a limitation with respect to the exempt hauling of tobacco.

The most important work of the transportation section involves actual participation in various cases before the Interstate Commerce Commission and the Public Utilities Commission, wherein rates affecting agricultural products are involved. From a financial standpoint, the most important transportation rate situation participated in was the general increase in rates established by the railroads on July 16, 1953. The Department of Agriculture authorized the Attorney General to appeal the decision of the Public Utilities Commission in this case, with resultant victory in the Superior Court. This decision was appealed by the Railroads to the Supreme Court of the State of North Carolina and supplementary thereto the railroads filed an application under the Thirteenth Section of the Interstate Commerce Commission Act to require the establishment of the increase.

Because of legal technicalities the increase of nine per cent granted July 16, 1953, expired February 28, 1954, and not only was this abolished, but a further six per cent increase previously granted was also included in the reduction. It is estimated that this 5 per cent reduction in rail charges represents a saving to the State of North Carolina of approximately \$1,500,000 per year. Because of the pending court decisions, it is problematical, of course, how long these increases will be held off.

MUSEUM DIVISION

HARRY T. DAVIS

Director

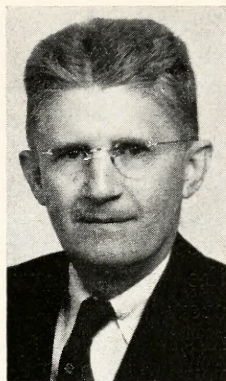
There have been many problems to meet during this biennium, but it has been a period of marked progress for the Museum. As the biennium began there was the problem of packing and storing exhibits preparatory to demolition of the old Museum Annex. At the end of the biennium the Museum staff was engaged in unpacking and placing these specimens in the enlarged quarters provided in the new Agriculture Building Annex. In the interval there have been the problems of administering the Museum from temporary offices in another building, caring for materials in storage, and selecting and placing exhibits for the two small rooms kept open to the public during this construction period.

Decisions had to be made as to what to keep and store from the accumulation of a century and more. Some items could be passed on to other public agencies. Objects stored ranged from the extreme in size of whale skeletons 40 and 55 feet long, which had to be taken down from ceilings and dismantled in sections, to small items which could be held in the palm of one hand. Heaviest were columns of ornamental stone, that weighed almost a ton. Large cases had to be reinforced and handled carefully to prevent glass breakage.

Storage space was found in a brick warehouse, a duplex building, a metal storage house, and on the ground floor of the state-owned Mansion Park Building. Offices and work rooms were also set up in the latter building. Certain storage had to be selected so that frequent care could be given to perishable specimens to prevent insect damage, mildew and other deterioration.

The usual Museum functions with respect to answering inquiries, distributing circulars and visual aids for groups were carried on. But the major task was preparing exhibits and making plans for use of the new quarters.

In June of 1953 members of the staff had the opportunity to visit and obtain information about modern Museum exhibits at the American Museum in New York, the Science Museum in



HARRY T. DAVIS

Boston, and museums in Rochester and Buffalo. This trip included sessions of the American Association of Museums in Buffalo, New York.

Conferences were held with Dr. Carl Guthe, of the American Association of Museums, and S. C. Gundy of the Ford Foundation. They reviewed and commended our planned installations.

Fortunately, the first and second floor halls in that portion of the Agriculture Building facing Halifax Street could be used for the visiting public during these two years. Exhibits were crowded into this space, both for the purpose of saving distance moving and to provide some interesting and educational material for visitors. Despite publicity about the partial closing of the Museum and the limited number of exhibits on display, some 264,000 visitors passed through these halls during the biennium.

ACCESSIONS

As objects come to the Museum they are recorded in an Accession Volume and catalogued. These totaled 1,088 for the biennium. The staff did a minimum amount of collecting during the period, and others were deterred from bringing in specimens by the fact that the Museum was partially closed.

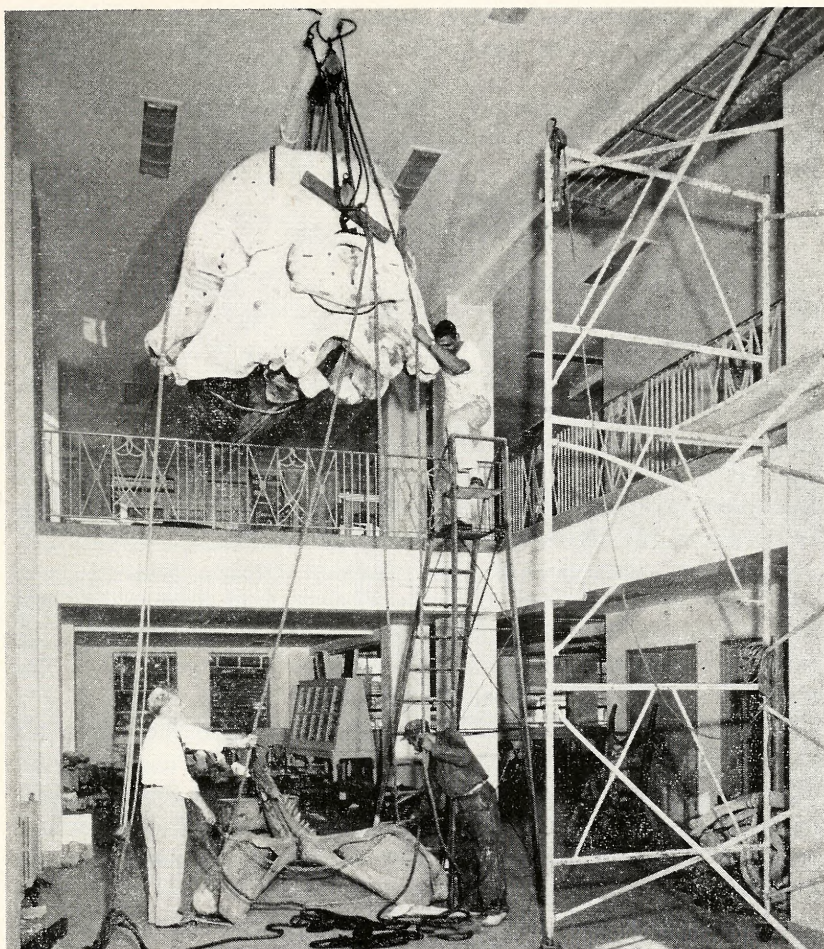
In summary, the accessions classify as follows: Rocks and minerals, 119; fossils, 90; plant life, 10; invertebrate animals, 48; fishes, 80; reptiles and amphibians, 122; birds, 56; mammals, 31; archaeological, 47; agriculture and handicrafts, 14; library volumes, 35; bulletins, 340; and pictures and lantern slides, 136.

Notable new accessions from North Carolina were two Scorpion Fish from George Yow of Wilmington, and a Franklin's Gull from B. R. Chamberlain, of Matthews.

BEQUESTS

Near the end of the biennium two bequests came to the Museum. The first was from the late Dr. Thomas M. Copple, of Greensboro, as follows:

"I give and bequeath to the North Carolina State Museum located in Raleigh, North Carolina, my entire collection of foreign and domestic coins, the latter consisting of two One Dollar gold coins, one \$2.50 gold coin, together with articles purchased and used by my grandmother, Elizabeth Lambeth, and my mother, Alvina Lambeth



Hanging a whale is a whale of a job, even when there is no meat on its bones. Shown above is the skull of the Museum's Sperm Whale being raised to the ceiling. This skull alone weighs approximately two tons. On the floor beneath the skull is the whale's lower jawbone. Some of the ribs and other bones are shown stacked to the far right behind the scaffolding.

Copple, consisting of one imported English silk shawl, two fans, one candle snuffer, candle molds, imported English snuff box, dulcimer, (a string instrument of biblical note.)”

The second bequest was from the late Miss Ruby Reid, of Wake Forest, as follows:

“To the State Museum in Raleigh, North Carolina, I bequeath the Ligon and Brodie Bibles, the daguerreotype of

my Great-Grandfather Dr. John Brodie, his Mortar and Pestle, and the snuff box of his wife, Martha Eaton Brodie."

While these are more appropriate for the Art or History Museums, they were accepted with the assurance that they would be placed to carry out the intent of the donors.

EXHIBITS

Although work on exhibits went on all during the biennium, they really started to take shape as placement began in the new building near the end of this period. Altogether new is a series of exhibits on astronomy that will make it possible for visitors to get correct information on the relation of the earth to other planets, and to the larger cosmos; and the relationship of North Carolina to the earth. From this will follow the geological history of the state, the mineral resources, and the soil resources that support the plant and animal life.

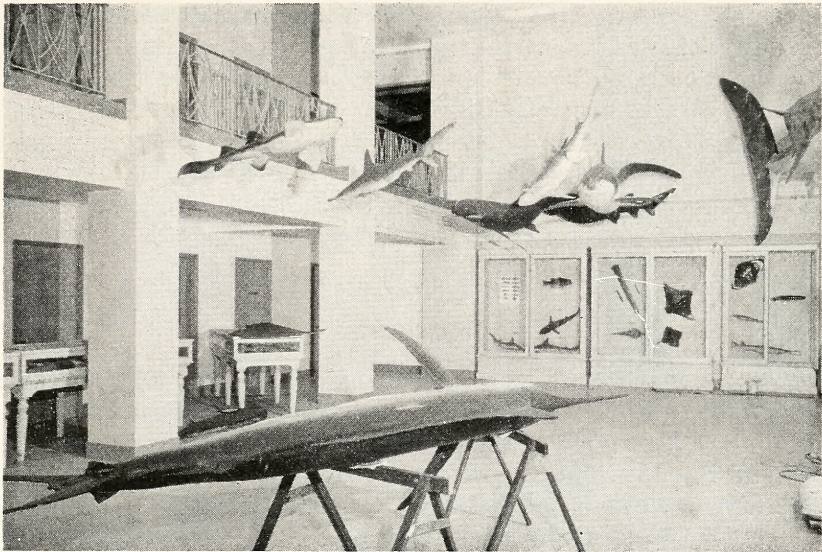
Plant life, with a series of excellent timber sections, will round out the first floor exhibits. The second floor will begin with our lowest forms of animal life and range upward through fishes and reptiles native to our state and its coastline. The larger fishes will be suspended in an open ceiling section.

The mezzanine above the second floor will provide space for the rich bird life and mammals of the state. Open floor sections will provide hanging space for the Fin-Back and Sperm whale skeletons, our largest mammals. Other space will be provided for hanging models of small whales above the fishes on the mezzanine.

ATTENDANCE

As noted above, visitors to our restricted exhibits numbered 264,101 for the biennium. For the first year the number was 139,992 and 124,109 came during the second year. The former was a Legislative year and fewer people knew of the reduced exhibits.

An analysis shows that for the year 1952-53 groups came as follows: High school, 519; elementary school, 397; college, 20; student nurse, 17; church, 26; farm groups, 22; boys clubs, 26; and training school, 2. The largest group was 185 from the Butner Youth Center, and the numbers ranged down to six. There were three groups from foreign countries. The Appomat-



Sharks swim in the air in the Museum's new Hall of Fishes. The Black Marlin on trestles in the foreground will be suspended from the ceiling at the opposite end of the hall. Smaller fishes are exhibited in cases shown in the background.

tox, Virginia, High School brought a group of 120 on December 6, 1952, and their Science Club, 16, came on March 21, 1953. The tenth grade from Alberta, Virginia, numbered 32 on April 12.

For 1953-54 the groups were: High school, 486; elementary school, 313; college, 6; student nurse, 14; Church, 22; farm groups, 9; boys clubs, 25; and training school, 3. The Appomattox High School repeated with a group of 125 on December 12.

With more space and new exhibits, it is obvious that the number of visitors will increase, that they will spend more time in the Museum, and that they will benefit from the more effective exhibits.

PUBLICATIONS

The Information Circulars relating to North Carolina continued to be appreciated by visitors and many others who write in for them. These are mimeographed, multilithed, and printed. New subjects were developed during the biennium, in response to requests. Altogether, about 300,000 were distributed. New copy for the printed guide leaflets is being developed for the

new quarters at this time. The Museum also distributes to visitors, and others, certain publications of other state agencies.

Our illustrated booklet on "Poisonous Snakes of the Eastern United States" continues in popular demand. The 50,000 printing has been reduced to the point that we can no longer supply them in quantity to museums and other institutions.

Work is well along for revision of the book, "Birds of North Carolina"; and information is being assembled for a book on our mammals.

PERSONNEL

The Museum staff has continued to work diligently to serve the visiting public under sometimes difficult conditions. The exhibits are kept open to the public from nine until five every day except Sunday. Sunday hours are from one until five. The Museum is open on all holidays except Christmas.

Four years ago, and again two years ago, an additional technical worker was requested. The need for another trained worker is now more acute, as new exhibits are being arranged and many details have to be attended to. Also at this time it is clearly apparent that there is need to collect and prepare fresh specimens to replace old ones and to fill in gaps to make the exhibits more complete.

GENERAL

The Museum personnel have continued to work closely with other agencies in the state. Surplus cases were made available to community museums in Fayetteville and Rocky Mount, to the State Park Museum at Morrow Mountain, and to the State Fair. A duplicate large poplar tree section was given the School of Forestry at State College, and objects from early agriculture in this state were turned over to the State Fair.

The same identification problems have continued to come to us. We have made outside talks about our work and have provided program packages of kodachrome slides and slide films.

PUBLICATIONS DIVISION

BLACKBURN W. JOHNSON

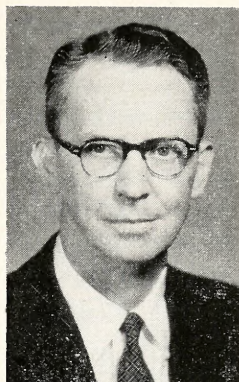
Editor

The work of this Division is varied, but its primary responsibility is to keep the public informed of the functions, services, and activities of the State Department of Agriculture. This is accomplished by the use of a number of media. Press releases for newspapers, wire services and radio stations are issued as news develops from day to day within the Department. A semi-monthly paper, the *Agricultural Review*, carries similar information and other special articles direct to farmers throughout the state. A series of bulletins make available to those who are interested reports on inspections and analyses and serve as a guide to buyers of feeds, seeds, fertilizers and insecticides.

Not the least important medium is afforded by direct contact with individuals who write or visit the Department for information. These range from school children requesting material for a theme to university scholars and professors engaged in writing theses or books. They also include reporters from newspapers and magazines who wish to develop feature stories on some phase of the Department's work.

During the past biennium, the volume of news releases prepared in this Division has remained about the same as during the preceding two years, and they reflect the wide variety and scope of the Department's activities.

Continuing publicity campaigns have been conducted for special or emergency programs. When the virus disease vesicular exanthema threatened the State's swine industry in 1952-53, press releases kept the farmers informed from day to day of control measures being taken by the Department and of new regulations governing garbage feeding of hogs. Similarly, wide spread publicity warned the public of the possible danger, both to human beings and to livestock, when anthrax spores were discovered in imported goat's hair at a North Carolina textile mill.



B. W. JOHNSON

News releases and articles in the Agricultural Review also proved helpful in carrying out a State-Federal cooperative program for emergency hay shipment to drought stricken farmers in nineteen counties during 1953.

When new requirements of the conservation program brought an avalanche of samples to the Soil Testing Laboratories in 1953, publicity kept farmers and agricultural leaders advised of steps being taken to cope with the situation and the ways in which they could cooperate to make those measures effective.

This Division has also cooperated with other state agencies and agricultural groups in important public relations programs dealing with matters vital to farmers and other citizens of the state. Such cooperative work has included publicizing the "Nickels for Know-How" Program, the Christian Rural Overseas Program, Farm and Home Week, and child labor laws as they relate to farming.

Cooperating with the State Department of Conservation and Development, we have carried articles in the Agricultural Review on the distribution of tree seedlings by the Forestry Division, the first of which resulted in a rapid sell-out of the seedlings on hand.

During the organizational period of the North Carolina Milk Commission this Division provided that agency with publicity service on its meetings and public hearings.

These and other "good neighbor" activities have been rewarding to the Department of Agriculture as well as to the cooperating agencies and the general public.

In all of these public relations and educational programs the Agricultural Review has played a very important part. This small paper goes directly to farmers and agricultural workers throughout the State. In addition to news of the Department's activities and programs, it carries articles of general interest to farmers, and provides a free classified advertising service, strictly agricultural in nature, which has proved of inestimable value to Tarheel farmers.

During the 1952-54 biennium circulation of the Review averaged approximately 73,000 copies an issue. Of the 48 issues published in this period, 36 were of four pages and 12 of eight pages. Due to limited funds available for printing and postage, no effort has been made to increase the circulation. In fact, we have long since found it necessary to refuse most requests for

BALLENTINE MAKES REPORT**Marketing Improvement
For Farm Crops Noted**

RALEIGH, July 4.—(AP)—Agriculture Commissioner L. Y. Ballentine today pointed to a number of more orderly steps for farm crop marketing accomplishments. Departmental reports show that the marketing of farm crops has improved.

**Soil Potatoes
May Be In State****Board Reduces
Weight on Leaf
Tobacco Sales**

New Tolerances Set To Overcome Old System Said To Be Exposed And Subverted

**Agriculture Board
Adopts Schedule
For Arena Rates**

Modern Building To Be Dedicated Next Oct. 20-24

Bread Softeners Banned

State Board of Agriculture has adopted a resolution to ban the use of bread softeners in the state.

**Test Farm
At Statesville
To Be Moved**

RALEIGH (AP)—Agriculture Commissioner L. Y. Ballentine today announced that the test farm at Statesville would be moved to a new site.

**Get Soil Tested
Fall Seeding**

RALEIGH (AP)—Agriculture Commissioner L. Y. Ballentine today urged farmers to get their soil tested before fall seeding.

**'Churned' Milk
Label Termed
A Violation**

RALEIGH, Feb. 3.—(AP)—The use of the word "churned" in describing cultured buttermilk is misleading and violates the State's dairy laws and regulations.

This ruling was upheld yesterday for the second time by the State Board of Agriculture. The ruling was made last spring by Agriculture Commissioner L. Y. Ballentine.

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**Liquid Fertilizer Rules
Are Adopted By Board**

RALEIGH, Oct. 19.—(AP)—The State Agriculture Board today adopted rules for the use of liquid fertilizers on farm crops.

**N.C. Dairymen
Are Producing
More Milk**

RALEIGH (AP)—North Carolina dairymen are producing more milk than ever before, according to a report by the State Department of Agriculture.

**New Farm Statistics
For State Published**

Copies Available at N.C. Department of Agriculture

**Agency Bans
Vegetable Oils
For Ice Cream**

RALEIGH, May 8.—(AP)—The State Department of Agriculture moved today to protect the health of the people by banning the use of vegetable oils for ice cream.

**Peanut Assessment Vote
Authorized By NC Board**

The State Board of Agriculture today authorized a vote on a peanut assessment.

**Second 'Nickels'
Election Planned**

RALEIGH (AP)—North Carolina farmers will vote on a second "nickels" election.

**Plan For Relief
Hay Discussed**

Ballentine Says Approval Sought

**Deluge of Dirt
Hits Soil Lab**

RALEIGH (AP)—The State Department of Agriculture today received a deluge of dirt from the soil lab.

**Fertilizer List
Voted by Board**

The State Board of Agriculture today voted on a fertilizer list.

**New Order Issued
On Tanker Milk**

The State Department of Agriculture today issued a new order on tanker milk.

**Revised List On
Restricted Weed
Seeds Is Issued**

RALEIGH (AP)—A revised list of restricted weed seeds is issued by the State Department of Agriculture.

**Measures Are Taken
To Exclude Swine
Disease From N. C.**

RALEIGH (AP)—Measures are taken to exclude swine disease from North Carolina.

**Dry Weather
Hurts Crops
Over State**

RALEIGH (AP)—With few exceptions, North Carolina farms are suffering from a dry spell.

**Five Counties
Quarantined
For Beetles**

RALEIGH (AP)—Five counties in North Carolina are quarantined for beetles.

**New Calibration
Station Dedicated**

RALEIGH (AP)—Without precise measurements, the industrial revolution and modern mass production would have been impossible.

**Veterinarian
To Help Fight
Hog Disease**

RALEIGH (AP)—The Agriculture Department has hired a veterinarian to help fight hog disease.

**Turkeys Spill
Out Of State**

RALEIGH (AP)—The Agriculture Department has ordered turkeys to be removed from the state.

**Producers Told
To Retain Seed**

RALEIGH (AP)—The Agriculture Department has urged producers to retain their seed.

**Farmers Will
Be Hit If Rail
Rates Hiked**

RALEIGH (AP)—The Agriculture Department has warned farmers that they will be hit if rail rates are hiked.

**Farmers Urged
To Slow Down
Hog Marketing**

RALEIGH (AP)—The Agriculture Department has urged farmers to slow down their hog marketing.

**State Fair
Arena Wins
Gold Medal**

RALEIGH (AP)—The State Fair arena has won a gold medal.

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**New Order Issued
On Tanker Milk**

The State Department of Agriculture today issued a new order on tanker milk.

The State Department of Agriculture has tightened its control on bulk movements of milk.

An official explained that this was taken "to eliminate the possibility of adulterated milk imports."

W. Pegram, chief of the department's Dairy Division, made

The State Department of Agriculture today issued a new order on tanker milk.

the Review from other states, even though these might offer additional markets for North Carolina farmers.

A series of publications known as *The Bulletin* is edited and prepared for printing by the Publications Division's staff. Annual reports in this series cover inspection and analyses of feeds, fertilizers and insecticides, and include timely articles on their use. An annual report on tobacco marketing is also published in *The Bulletin* series, and at three-year intervals there is a report on seed inspection and analyses.

Nine issues of *The Bulletin*, totaling 1,222 pages, were published during the 1952-54 biennium.

Secretarial service to the Board of Agriculture is another function of this Division. In addition to the keeping of minutes on Board meetings, this work includes the recording of public hearings, and assistance in the writing and codification of regulations and amendments. The Division also supervises the printing and part of the distribution of rules, regulations and laws administered by the Department of Agriculture.

The Board met 14 times during the period covered by this report, and Division personnel also attended and recorded some eight or ten hearings or conferences in addition to these meetings.

Nineteen amendments to regulations, comprising 33 printed pages, were codified, prepared for printing and distributed to Clerks of the Superior Court in each county, libraries and others who maintain complete files of the regulations. Two new chapters were added to the regulations, and five other chapters were revised and reprinted, a total of 132 printed pages. Nine pamphlets of laws, comprising 114 pages, were prepared for printing, proof-read and distributed.

To the Publications Division come letters and visitors seeking information which does not pertain to any one of the Department's other divisions. Thousands of such inquiries are handled each year, some merely requiring referral to other agencies, others involving some research and study on the part of our personnel. The latter range from brief studies to long and time-consuming projects.

During the biennium just closed, for instance, members of the Division's staff spent a total of some weeks working with the Institute of Government in its study of the Department's legislative functions for the Commission on Reorganization of the

State Government, and with several eminent scholars who were writing books on state agencies and their functions.

In March, 1954, the Department was host for two weeks to a group of officials from eight foreign countries, who came to Raleigh under the sponsorship of the U. S. Department of Agriculture and the United Nations to study government administration at the state level. The editor of this Division worked with Coyle H. Whitworth, of the Statistics Division, in preparing the "curriculum" for this short course and accompanying the visitors to the classes held for them in the Department and other state agencies.

The door of the Department of Agriculture is open at all times to press and public alike. It is the duty and the privilege of the Publications Division to help all who come seeking knowledge of this important State agency.



W. H. DARST

SEED TESTING DIVISION

W. H. DARST

Director

With all the great changes and improvements in the production of crops taking place in recent years, high quality in seeds remains first in importance to the country's welfare and prosperity. The cost of higher quality seed is insignificant as compared to the cost of present day farm equipment for increasing yields and lowering cost of production. In other words, the extra investment in higher quality seed for use on the farm, will bring much higher returns than any other type of investment.

The Seed Testing Division maintains an official laboratory, cooperating with the U. S. Department of Agriculture, and with other official state and provincial laboratories. The laboratory operates under "Official Rules for Testing Seeds," adopted by the Association of Official Seed Analysts of America and the U. S. Department of Agriculture.

The functions of the seed testing division are:

1. To inspect and test field and garden seed on sale within the state.
2. To enforce the North Carolina seed law.
3. To test for purity and germination all seed to be certified by the North Carolina Crop Improvement Association.
4. To cooperate with the U. S. Department of Agriculture in the enforcement of both federal and state laws when applying to inter-state shipments of seed.
5. To test all seed used by the Landscape Department of the State Highway & Public Works Commission.
6. To analyze and test seed on request by residents of the state as time and facilities will permit.

The personnel of the Seed Testing Division during the biennium consisted of the following full time employees: A director in charge, a supervising analyst, five purity analysts, two germination specialists, one stenographer-clerk and four full-time and one half-time "seed specialists" (seed inspectors). In addition, eight to ten part time workers were employed during the two rush seasons of the year.

The laboratory tested 17,143 samples of seed in the fiscal year 1952-53 and 18,314 in 1953-54. A total of 62,975 lots of seed were inspected during the biennium. A total of 577 Stop-Sales orders were issued, involving approximately 10,000 bags of different lots and kinds of seed on sale in violation of the seed law.

Several hearings on seed law violations were held before the Commissioner of Agriculture. Approximately sixty-five violations of the Federal Seed Act were reported to the District office.

The work of the Seed Testing Division is noteworthy not only in the volume of testing done each year, but in the efficiency and equipment used. In a "Referee Efficiency Test" conducted by the Association of Official Seed Analysts, the North Carolina laboratory was rated 100 per cent efficient. In a study made by the committee of the Association of National Seed Control Officials on the "Qualifications and Training of Seed Inspectors," the chairman of the committee offers the opinion that North Carolina seed inspectors rank first in qualifications.

Since the close of the biennium the seed laboratory and offices have been moved to the fifth floor of the new Agricultural Annex. Facilities now in use are equal to the best in the United States.

ON-THE-SPOT SEED CONTROL

The new policy of "on-the-spot" seed control adopted during the last biennium has received wide acclaim both within and without the State. The use of trained seed analysts as seed inspectors, with authority to issue Stop-Sale orders based on analysis of seed made in the dealer's store, has made possible more effective and efficient seed control. More seed lots are inspected, resulting in less seed sold before inspection and/or in violation of the law. Practically no inspected seed has been sold before a Stop-Sale order was received. The following table is a comparison of the old method of inspection with the new procedure. By the old method the inspector simply sampled a lot of seed sending the seed with a report to the laboratory for analysis. In case the seed was found mislabeled a Stop-Sale order was issued from the office. A lapse of one to several weeks time was unavoidable between the date of sampling and completion of the analysis. If the seed was on sale in violation of the law during this time a large portion, and often all of it, would be sold before a Stop-Sale order could be issued.

COMPARATIVE EFFICIENCY OF "ON-THE-SPOT" CONTROL

	Fiscal Year 1950-'51 Old Method	Fiscal Year 1951-'52 New Method	Fiscal Year 1952-'53 New Method	Fiscal Year 1953-'54 New Method
Number of seed Lots inspected.....	No record	33,896	31,897	31,078
Total stop-sales issued.....	162 Lots	371 Lots	330 Lots	247 Lots
Stop Sales issued by inspectors and verified by laboratory analysis.....	56 Lots	325 Lots	313 Lots	237 Lots
Lots inspected but sold out before receiving stop-sale order.....	74 Lots*	2 Lots	1 Lot	0
Total number of bags of seed in lots issued stop-sales	5,765 Bags	9,929 Bags	5,349 Bags	4,548 Bags
Total number of bags of seed in lots prohibited sale.....	1,928 Bags	4,528 Bags	1,963 Bags	1,464 Bags
Total number of bags of seed in lots re-labeled.....	No record	5,401 Bags	3,386 Bags	3,084 Bags

*Under the new method most stop-sale orders are being issued by inspectors in the dealer's place of business. It is a violation of the seed law to sell, move or allow to be moved, seed on which a stop-sale order has been issued until the law has been complied with and a written release is received from the Commissioner or his authorized agent.

CHANGES IN THE SEED LAW

In 1953 the North Carolina seed law was amended affecting the sale of hybrid seed corn. As the law now stands, hybrid seed corn, to be eligible for sale in North Carolina, must be tested in official performance tests conducted by the Agricultural Experiment Station, and approved by the Hybrid Seed Corn Committee. The hybrid must be recorded annually with the Commissioner of Agriculture. A two pound sample of the seed of each hybrid recorded must be furnished the Commissioner for use if desired in verification tests. An affidavit must be furnished with respect to each hybrid being offered for recording, affirming that its pedigree is different from that of all other hybrids being offered for recording by the same sponsor and that the designa-



Inspecting hybrid seed corn verification tests at the Upper Coastal Plain Test Farm. The correct labeling of seed as to variety, when variety cannot be determined by the seed characteristics alone, is a source of grave concern to the seed analyst and law enforcement officer.

tion given to it is the same designation which was used for the hybrid of this same pedigree when first sold, offered or exposed for sale or was first entered into official test or offered for official recording.

The seed regulations were changed as they concern the noxious weed seed list. Canada thistle, Field bindweed, and Quackgrass were moved from the "prohibited" to the "restricted" list, permitting up to one hundred of these weed seeds per pound of crop seed. Blessed thistle, Sandbur, Wild mustard and Wild radish were declared noxious. The seed tag must now declare the number of these weed seeds per pound of crop seed.

VERIFICATION TESTS

Increases from year to year in the number of varieties and strains that can not be identified by examining the seed alone, have been of great concern in the correct labeling of seed. The seed analyst must take the word of the grower as to trueness of variety.

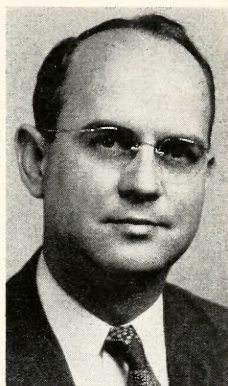
In order to determine whether the seed is labeled correctly as to variety, all such seed is now subject to a verification or growing test under field conditions.

Fifty-four different hybrids were found on the market last year. These were planted beside seed from a file sample sent in by the grower in compliance with the seed law. This year all hybrids sold appear to be correctly labeled as indicated by their uniformity and variety characteristics.

SOIL TESTING DIVISION

DR. J. W. FITTS

Director



DR. J. W. FITTS

North Carolina farmers use almost 2,000,000 tons of commercial fertilizer annually. This is more than is used in any other state. Efficient use of this fertilizer means potentially many dollars from increased crop yields. To get the most from fertilizers soils must be limed properly for the crops being grown. To aid farmers in distributing fertilizer materials on the areas where needed most, and to guide them on the quantities of lime to apply, the Soil Testing Division was established in the Department of Agriculture in 1939.

MORE SAMPLES TESTED

The trend in the number of soil samples tested has been upward each year since the laboratory was started. This is clearly illustrated in Fig. 1. From July 1, 1945 to July 1, 1946 about 65,000 laboratory determinations (lab. determinations include tests for available phosphate, potash, calcium, magnesium, pH or acidity and per cent organic matter) were made. This increased to about 250,000 during the fiscal year 1949-50 and remained almost constant the following two years. Another marked increase took place during the 1953-54 season when about 480,000 determinations were made.

Several factors are responsible for the upward trend in samples tested. The various agricultural agencies have stressed the importance of soil testing in good farm management. Considerable emphasis upon the efficient use of lime and fertilizers through soil tests have been made by the Agricultural Extension Service and State College in their educational programs. In 1953 considerable impetus was given by the Agricultural Stabilization Conservation program in requiring tests to determine the amount of lime needed for establishing permanent type forage mixtures.

RUSH SEASON

Although samples are submitted to the laboratory for testing in all months of the year, the most popular continue to be January, February and March. In February of 1954 all records were broken for a large number of samples submitted for testing in a short period of time. During this month almost 40,000 samples were received which required about 200,000 determinations. This is almost as many determinations as completed in any one previous year. During a two-day working period (Friday and the following Monday) approximately 12,000 samples were received which was about eight times more than could be analyzed during these two days. Obviously there was some delay in getting reports to the farmers. The largest output of samples was attained in March when over 21,000 samples (almost 100,000 determinations) were analyzed.

The A.S.C. requirement for lime tests has lengthened the rush season to include December and April during the winter and early spring. Another rush during August and September will be created for fall seedings.

SUBSOIL SAMPLES NO LONGER REQUIRED

Progress through research is being made in all fields of science and soil testing is no exception. Cooperative studies with State College have given us much more information about the soils of the State which aids in interpretation of soil test results and with recommendations on application of lime and fertilizers. Application of phosphate, potash and lime changes the fertility status of the plow zone, but changes in the subsoil take place very slowly. Studies have been made and are being made of the profiles of the major soil types in the state. When it is known where a sample comes from, considerable information is already available about the subsoil. Soil tests are aimed at determining the fertility of the plow zone and changes that are taking place due to fertilizer and lime applications.

Elimination of subsoil samples, however, has not materially reduced the number of laboratory determinations that must be made. Neither has it reduced the number of recommendations by agronomists, nor the number of reports that must be typed and mailed to the farmers. The trend in the number of surface



The receiving room was filled and mail bags piled up in the corridor when an avalanche of soil samples descended on the laboratory in February, 1953. The bottom photo shows a clerk assigning code numbers and recording information on the samples. (Photos courtesy of LIFE magazine.)

soil samples is shown in the following chart. In 1945-46 the number was less than 20,000 but in 1953-54 it had increased to almost 100,000.

PERSONNEL

An increase in volume of samples tested necessitates a larger staff. Two full time employees, an agronomist and a stenographer were added to the staff during the past biennium. Temporary employees are added during rush periods. In the past, four or five temporary employees have been sufficient but during the rush in the spring of 1954 a total of ten temporary employees, including an agronomist, lab technicians and typists were added to the staff in order to get the avalanche of samples tested. Even more staff members, both temporary and permanent, will be needed if the volume of samples continues to increase.

RECOMMENDATIONS

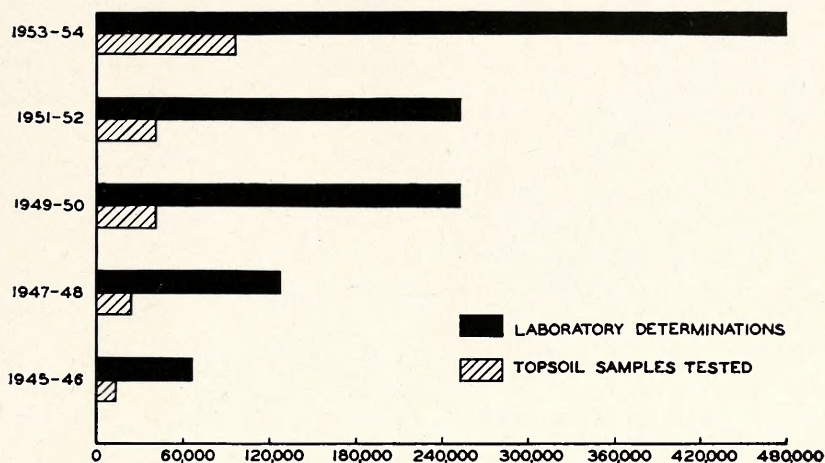
It is not necessary to test the land every year. If a representative sample is taken, the recommendations should be good during the next three to five years, depending upon the cropping system followed. The information sheets submitted with soil samples have been modified so that more crops to be grown can be listed. The trend in recommendations is toward fertilizing for the rotation rather than individual crops. More emphasis is put upon liming and building the fertility level of the soil to fit the crops to be grown. More information relative to a good management program is given to the farmer submitting soil samples.

SUMMARIES

Soil test summaries on a county or area basis can be of great value in pointing out the fertility status of the area in question. Summaries have been prepared periodically by the Soil Testing Division.

During the past year local agricultural leaders held meetings in many counties of the state to discuss the fertility needs of their soils. Soil test summaries were prepared for the areas and served as a basis of discussion. The summaries were prepared in two-way tables (phosphate and potash) for the principal crops. The advantage of the two-way table is to indicate the distribution of soils relative to both phosphate and potash.

NUMBER OF LABORATORY DETERMINATIONS
AND TOPSOIL SAMPLES TESTED PER YEAR



Tables were prepared also showing the grades of fertilizers needed for these crops and the percentage requirement of each grade. Such information is valuable not only to farmers, but to fertilizer dealers in ordering the grades of fertilizers to sell.

A summary of the results obtained from July 1, 1951 through June 30, 1953 is being prepared for printing in bulletin form. The summary will include more than 500,000 determinations.

TAKING SOIL SAMPLES

Taking soil samples is one of the most important phases of soil testing. Regardless of how accurate the laboratory analyses may be made, the results are no better than the accuracy with which the samples were taken. Considerable emphasis was again placed on this important phase of the program during the past biennium. Exhibits and demonstrations were conducted in conjunction with several of the field days at Experimental farms. It was emphasized also in three TV shows and in exhibits at the State Fair and a few local fairs.

SURVEY ON RESULTS

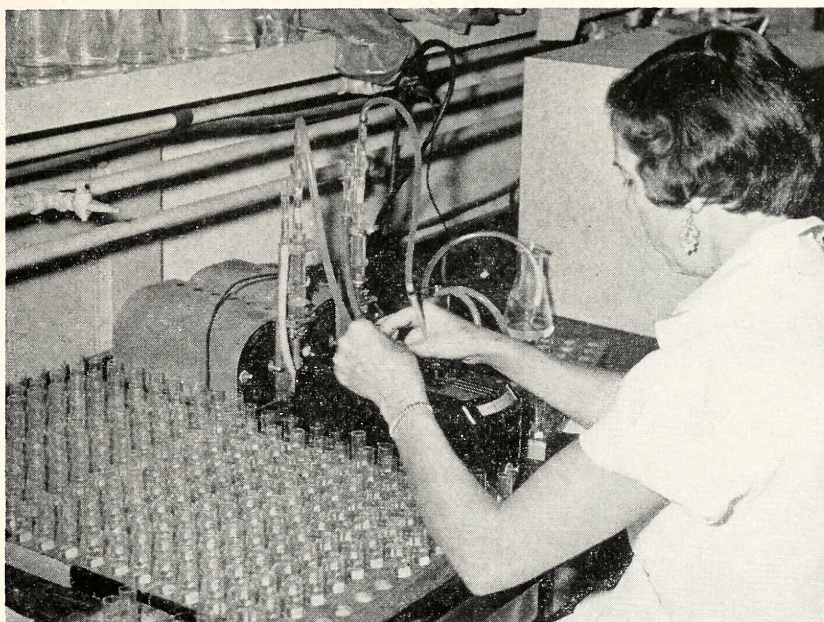
Personal contact with farmers to aid them in getting representative soil samples and in understanding the results of the

soil tests is important. Local agricultural leaders are very helpful in this phase of the soil testing program. In the spring of 1953 a questionnaire relative to the soil testing program was sent to 368 local agricultural leaders, including county agents, soil conservationists and vocational agricultural teachers. A total of 191 questionnaires were returned, and almost every county in the state was represented. A few of the questions and the answers received are listed below:

1. Are you distributing cartons and information sheets to farmers at present? Yes—88%. No—12%
2. Are the instructions for taking samples given on the information sheets understood by farmers? Yes—86%. No—14%.
3. Do farmers consult you about the soil test reports they receive? Yes—97%. No—3%.
4. Is our present form of soil test report understood by farmers? Yes—89%. No—11%.
5. Have you had contact with farmers to see if they used the recommendations made on the soil test reports? Yes—98%. No—2%.



Placing measured quantities of soil in glass beakers in preparation for determining the acidity (pH) and lime requirement. (Photo courtesy of Carolina Co-operator.)



Determining the amount of calcium in soils through use of a photometer. (Photo courtesy of Carolina Co-operator.)

6. Can farmers obtain the fertilizers recommended? Yes—84%. No—7%. Not always—9%.
7. Are farmers liming according to the recommendations? Yes—84%. No—10%. Not always—6%.
8. Do you keep the copies of soil test reports that you receive? Yes—98%. No—2%.
9. Would you like additional soil test summaries? Yes—91%. No—9%.
10. Would you like more news stories that you can adapt for use locally? Yes—95%. No—5%.

SOIL TESTING IN THE FUTURE

As indicated in the accompanying photographs, space became a limiting factor during the rush periods. This situation will be greatly improved when the laboratory is moved to the new Agriculture Building Annex. Not only will more space be available, but the laboratory will be arranged for more efficient operation. The new laboratory is being designed to test about 1,000 samples

a day (5,000 determinations), assuming adequate personnel is available. The new laboratory will be one of the largest and most modern soil testing laboratories in the United States.

Although much progress has been made in recent years, even more is anticipated in the years ahead. New analytical procedures will be tried along with new equipment. With advances in other fields of agriculture, it is necessary for soil testing to keep pace in order to interpret the results and make as accurate recommendations as possible.

THE STATE FAIR

DR. J. S. DORTON

Manager

The years covered in this report were indeed eventful ones for the State Fair. The most outstanding event of the 1952-54 biennium—in addition to the operation of the two most successful Fairs in history—was the completion in the spring of 1953 of the new State Fair Arena. Dedication of this architectural triumph was a highlight of the 1953 State Fair. It has brought worldwide attention to North Carolina.



DR. J. S. DORTON

The Arena has been used extensively by various groups, including beef and dairy cattle shows and sales, horse shows, swine shows and sales, farm machinery shows, sheep and ram shows and sales, and performances of the American Legion Rodeo. The Fair management has limited the use of the Arena, however, while attempting to clear up an acoustical problem. This problem is nearing solution, and when it has been overcome the Arena can truly become one of the important showplaces of the nation.

In 1952 the State Fair fulfilled the long-standing need for adequate housing for youthful exhibitors. The new State Fair Youth Center, with two dormitories, a cafeteria, and an office and clinic, was completed. The presence of such facilities on the Fairgrounds has greatly encouraged participation in the Fair by 4-H Club and Future Farmer of America members. The State Fair Youth Center has been made available at minimum rates to school and similar groups throughout the year. With accommodations for approximately 150 persons, the center has proved a valuable addition in the over-all plan for making the Fairgrounds a year 'round center of educational and recreational activity.

After serious consideration over a period of months the North Carolina Board of Agriculture, on April 27, 1953, adopted rules, regulations and rental schedules for operation of the State Fair Arena. These have proved not only workable, but of great assistance to the Fair management and prospective lessees.

Each year of the 1952-54 biennium more people than ever before attended and took part in the State Fair—more than half a million each Fair Week. The State Fair continues to be North Carolina's biggest annual event, with excellent representation from every corner of the state. In 1952 there were exhibitors from 85 of the 100 counties; in 1953 the number climbed to 88. Ninety-four different counties were represented during the two Fairs.

	1953	1952
Revenue	\$302,566.79	\$276,214.58
Expenses:		
Premiums distributed	41,979.35	35,842.71
Maintenance and improvement of grounds	34,293.53	55,187.48
Administration	23,526.51	24,538.26
Federal Admission Tax	10,715.13	9,690.09
Other operational costs	134,221.22	96,089.01
Total Expense	\$244,735.74	\$223,347.55
Profit from operations	57,831.05	52,867.03

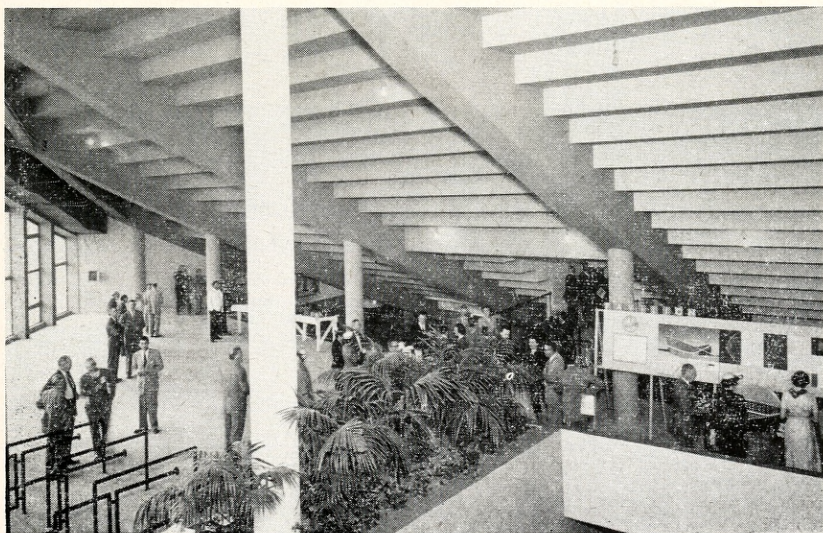
Additional exhibit space, greater general interest and expanded participation helped make the two Fairs of the period even more profitable than those of the previous biennium. The Fairs of 1952 and 1953 produced the following financial results:

Premiums paid to exhibitors and funds spent for improvement and maintenance of the Fairgrounds continue to increase as revenue expands. Premiums distributed in 1953 totaled \$41,979.35, compared with \$37,842.71 in 1952. The 1952 Fair produced revenue of \$276,214.58, had expenses totaling \$223,347.55, and realized a profit from operations of \$52,867.03. The 1953 Fair showed a gross profit of \$57,831.05.

During the 1952-54 biennium parking facilities were expanded to take care of 10,000 automobiles. Exhibit space was expanded and put into full use for the first time in 1952 with the acquisition of the highway shops, totaling 46,500 square feet under roof. Lobbies in the Arena provided another 25,000 square feet of new exhibit space. Used for the first time in 1952 was the new 23,814-square-foot swine barn, which allowed for accommodation of approximately 50 per cent more swine entries.



The newly completed Arena dominated the scene at the 1953 State Fair. Hailed as "the most modern building in America," this structure has won numerous architectural awards and attracted world-wide attention to North Carolina.



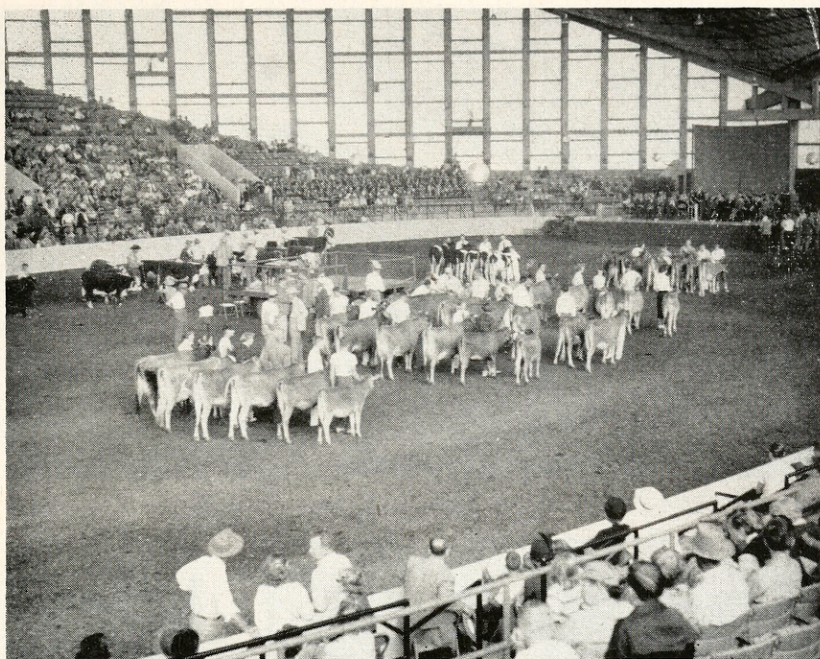
Lobbies on ground and basement floors of the Arena have added 25,000 square feet to the Fair's exhibit space. They also contain eight large rest rooms, dressing rooms, offices, storage rooms and equipment for operating the electrical and heating systems.

Since the State Fair became a part of the North Carolina Department of Agriculture a total of \$310,967.98 has been paid out to exhibitors in premiums in 13 Fairs held through 1953. During the same period, \$348,701.35 was spent on improvement and maintenance of the Fairgrounds. Thus nearly 14 per cent of the total revenue for the 13 years was paid out to patrons in premiums, and more than 15 per cent of the revenue was spent on improving and maintaining the grounds.

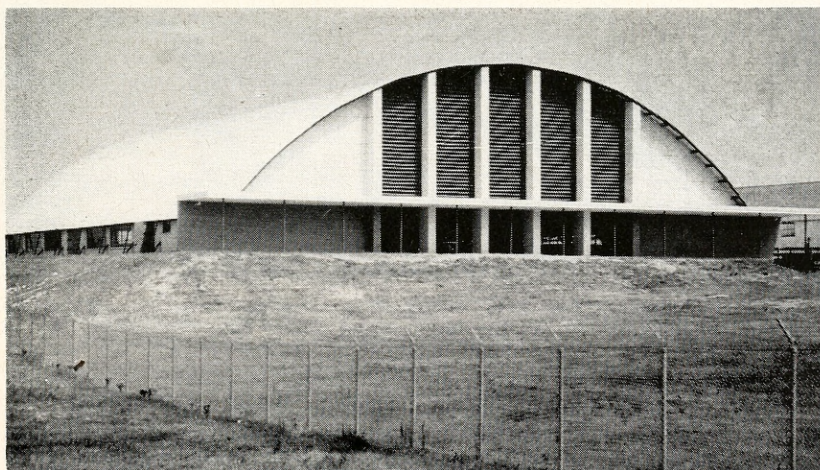
From the annual audits of the State Fair Fund, the following figures are significant, especially the steady increase in the amount of premiums paid:

Year	Revenue	Improvement, maintenance of grounds	Premiums Paid
1953	\$302,566.79	\$34,293.53	\$41,979.35
1952	276,214.58	55,187.48	37,842.71
1951	258,340.60	44,311.22	31,075.50
1950	212,455.58	19,383.29	30,650.00
1949	233,523.22	25,635.68	28,550.00
1948	196,924.72	26,174.24	25,332.75
1947	166,312.27	34,639.31	20,283.00
1946	220,544.03	36,855.35	14,499.50
1942-45	(No Fair)	26,170.43	
1941	101,856.00	11,969.92	18,775.25
1940	80,742.52	7,379.71	17,254.25
1939	72,128.73	8,549.40	16,677.75
1938	78,599.32	7,358.78	15,383.00
1937	68,867.01	10,793.01	12,664.92

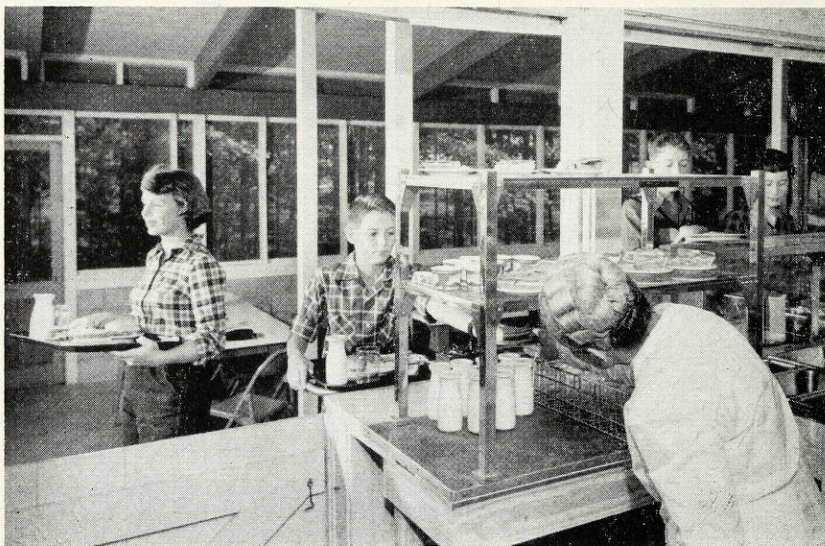
In 1953 the State Fair celebrated its 100th anniversary. As it moves into its second century every effort will be made to bring it even closer to the people of the state.



Livestock judging in the Arena. Note the unobstructed view from all sides. The building is 300 feet in diameter and has a seating capacity of 5,128 in the stands and boxes. An additional 4,000 portable seats can be installed on the floor.



The new swine barn has 23,814 square feet of floor space. It permits 50 per cent more swine entries than could be accommodated prior to its completion in 1952.

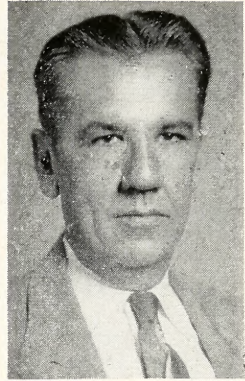


The Fair's new Youth Center fills a long-standing need. One of the two dormitories is shown in the top photo at left, with the administration and manager's quarters in the right foreground. Cafeteria facilities are pictured in the bottom photo. The Center has accommodations for approximately 150 persons, and is used not only by young exhibitors at the Fair, but by other school and youth groups throughout the year. Charges are kept at the minimum to cover heating, lighting and operation costs. When blankets, sheets and towels are furnished by the Center, dormitory rates vary from \$1.75 a day per person for a group of 25 or less, to \$1.25 per person for a group of 50 or more. Groups furnishing their own bedding and towels are charged \$1.00 per person, regardless of the number accommodated.

DIVISION OF STATISTICS

HENRY L. RASOR

Statistician In Charge



HENRY L. RASOR

Recognizing the many advantages of a joint relationship between the State and Federal Governments in the development of agricultural statistics, North Carolina, thirty-five years ago, entered into a co-operative agreement with the Federal Department of Agriculture to provide detailed agricultural statistics which are so essential to the economy of the State. This agreement resulted in the creation of the Crop Statistics Division of the North Carolina Department of Agriculture, which is popularly known as the North Carolina Crop Reporting Service.

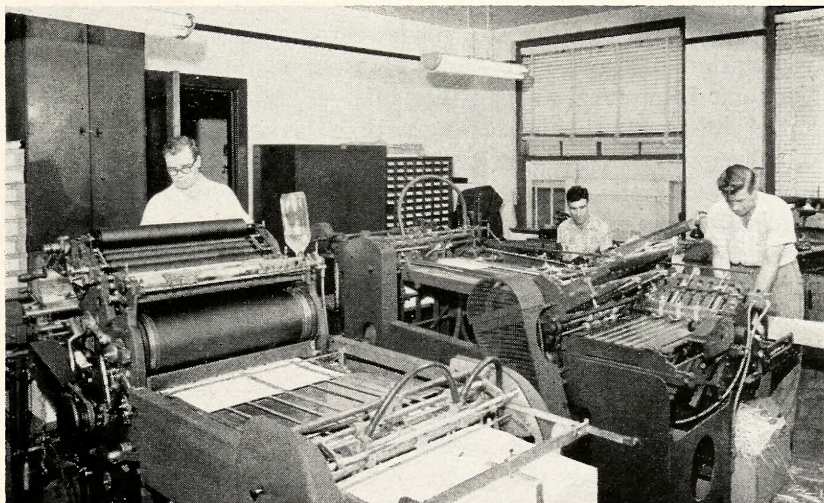
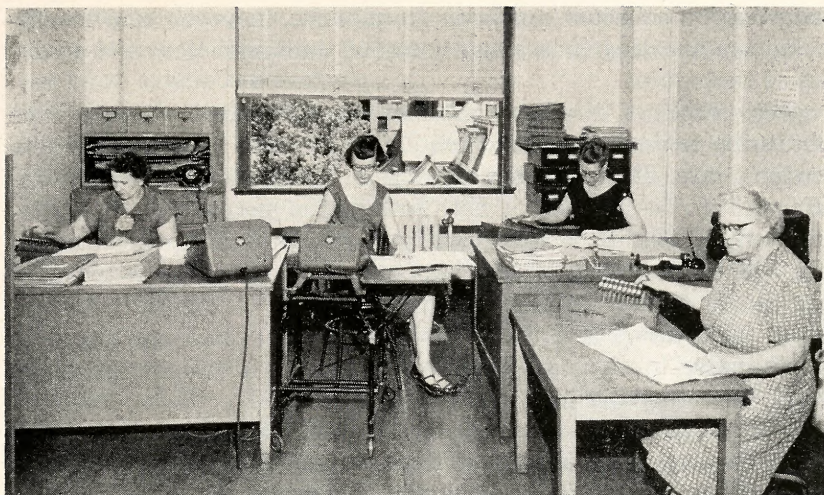
The Federal Government is interested primarily in the development of agricultural statistics at the state and national levels, whereas the State Government is interested primarily in the preparation and dissemination of statistics at the county and township levels.

Most of the basic information on production, supplies and prices of farm products in North Carolina, is collected and analyzed by the Crop Reporting Service. Whether you get information about production of crops and livestock direct from your State Statistician, your County Farm Agent, or from newspapers or radio, just remember that these facts come from your Crop and Livestock Reporting Service. The data come first, though, from farmers, county officials, merchants, ginners, mills, elevators and warehouses, hatcherymen, dairy plants, meat packers and many others in the state who provide this information free of charge as a public service. These people are essentially the backbone of the Crop Reporting Service and should be given full credit for their worthy contribution to the state and nation.

No discussion of the North Carolina Crop Reporting Service would be complete without mention of the important part which the annual State Farm Census plays in the preparation of statistics at the county and township levels. Needless to say, we still have our troubles in obtaining accurate and complete information from each of the townships in the state. The quality of the



Pictures above and on the following page illustrate some major steps in the development of an annual County Farm Census. In the top photo above a farmer is shown reporting to a township lister; with the County Agent looking on. Farmers begin reporting to listers around the first of January each year, and county farm agents cooperate and give assistance where needed. Township reports are sent to the Crop Statistics Division, where experienced technicians (bottom photo) carefully check and review the data for accuracy and completeness. Reports of individual farmers are held in strict confidence.



The statistical clerks in the top photo are compiling county summaries of farm census data. Summaries include data on farm population, inventories of cattle, pigs and poultry on farms as of the first of each year, fertilizer consumption, and land utilization broken down by major crops and pastures. The lower photo shows the duplicating room where the summaries are multilithed, folded and mailed. This duplicating equipment is also used to print hundreds of other statistical reports developed by the Statistics Division.

information collected continues to improve, however, and technicians are devoting increasing hours of time in review and analysis of these data.

With each of the 100 counties participating, we are now obtaining reports on approximately 95 per cent of all farm tracts in the State. This is believed to be a fairly remarkable record. We want to do still better, both in terms of percentage completeness and in quality of individual reports. More and more emphasis will be placed upon the importance of educational work at the county level in connection with the Farm Census. All agricultural workers within the State and the counties are urged to participate, to the fullest extent possible, in this educational work which is so vitally needed.

During the 1953-54 fiscal year, 492 separate statistical reports were developed by the Crop Reporting Service. These reports covered almost every conceivable phase of crop and livestock production. We processed more than three times as many reports during the past year as were processed 15 years ago.

In order to obtain the basic information necessary for preparation of the many statistical reports developed by this Division, we maintain several lists of voluntary reporters representing all agricultural interests within the state. There are some 50,000 separate names on these lists to which one or more inquiries are mailed some time during each year. To provide improved accuracy in estimates developed from information received by correspondents, mailing lists have been constantly increased.

A total of 380,000 inquiries mailed out during the 1953-54 fiscal year is the largest of record for the Service and is more than one-fourth above the number mailed out 15 years ago.

We are particularly proud of our continued improvement in services to the public as reflected by the very rapid increase which has been made in numbers of publications mailed to individuals and concerns in North Carolina and in other states who are interested in North Carolina agriculture. A total of 733,000 copies of releases mailed to recipients in 1953-54 is the largest of record, being almost 20 per cent in excess of the previous year and more than two and one-half times the number mailed 15 years ago. In addition to the circulation of statistical material through direct mailing, newspapers scattered throughout the state give wide coverage to the information contained in these reports. Through these mailed releases and through publicity

given by newspapers, practically everyone in the state has immediate access to the large volume of official estimates released by the Crop Reporting Service.

During the past year we have also presented a number of programs through the medium of television as a means of getting agricultural information to the public. Expanded use of television and radio is contemplated.

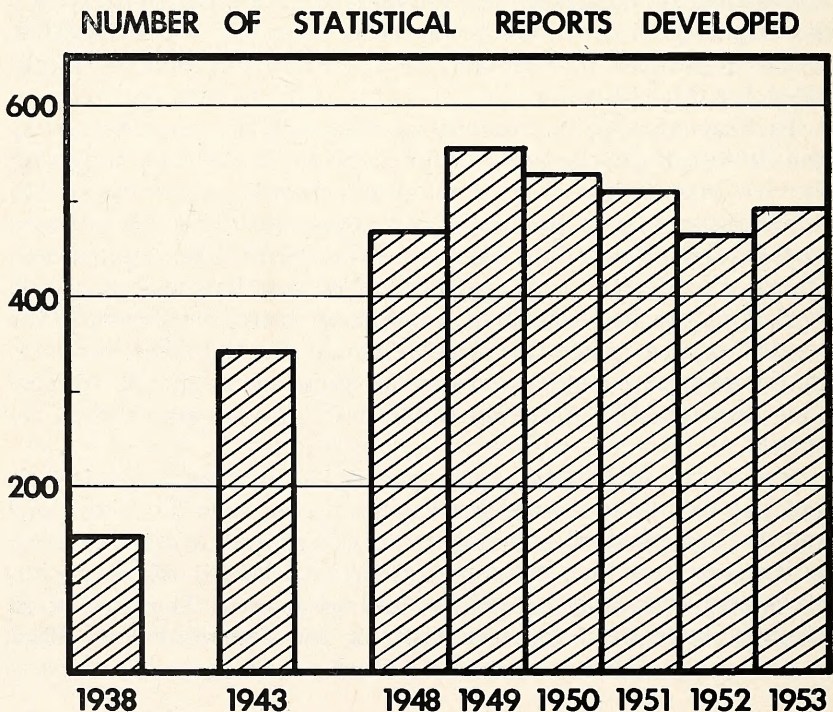
At the present time, we are duplicating a very large percentage of the printed matter used by the Crop Statistics Division, both for collection of basic agricultural data and for dissemination of information to the public. In addition to material duplicated for our own Division, we duplicate a fairly large volume of material for other divisions within the Department. A total of approximately 3,800,000 copies were duplicated on our mimeograph and multilith machines during the fiscal year 1953-54. This is the largest number of copies ever duplicated by the Division except for the fiscal year 1949-50 when the Farm Census books were duplicated. The quantity produced during the past year is more than seven times as large as the output in 1942-43, the first year for which we have records of output. It is also interesting to note that work done for other divisions within the Department continues to increase. Included in the 3,800,000 pieces duplicated in 1953-54 are approximately 950,000 duplicated for other divisions.

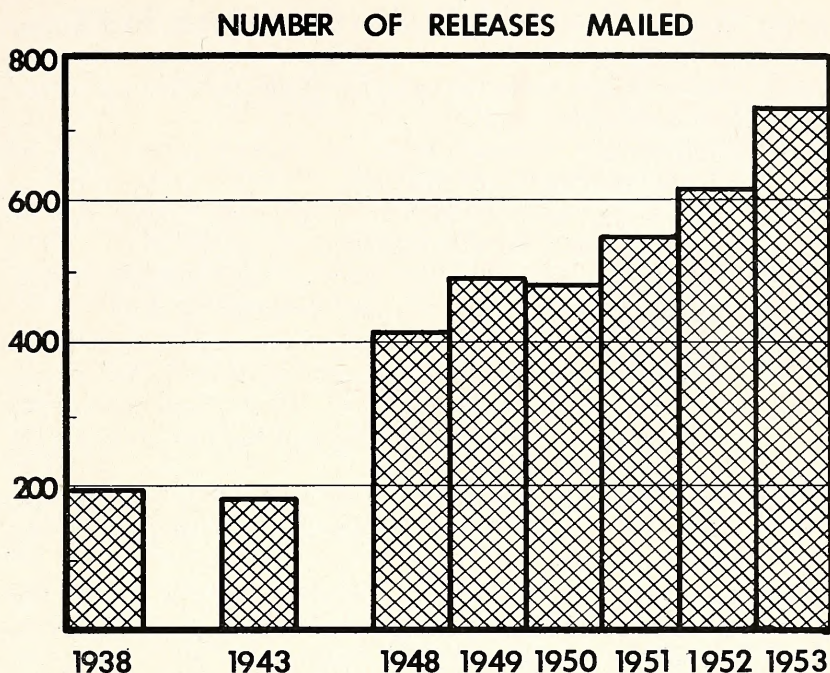
To keep abreast of current conditions with respect to crop and livestock production, technicians in the Crop Reporting Service take frequent trips making personal observations and evaluations of crop prospects and contacting local agricultural workers, county officials, farmers, processors, hatcherymen, and others who deal in farm products. The peculiar nature of our work and the limitations in number of personnel preclude the possibility of as much travel as we would like to make. However, we do make it a point to cover the state as completely as possible immediately preceding publication of any major crop report.

Due to our proximity to the research laboratory at State College and to the close working relationship between the laboratory and the Crop Statistics Division, North Carolina is often selected as the state in which intensive research is done in efforts to improve crop reporting procedures and techniques. These research projects have been financed entirely by Federal funds. They

normally call for a considerable amount of travel both on the part of regular personnel and on the part of field enumerators who are hired to collect specific information direct from farmers. During both fiscal years 1953-54 and 1949-50, we had major research projects in North Carolina.

The personnel of the Crop Statistics Division keep in close contact with other divisions of the Department, particularly the Marketing Division, and with agricultural workers at State College, attempting to meet, insofar as possible, their demands for agricultural statistics. As the result of demands from these agencies, two new major projects are being undertaken during the current fiscal year. The first of these projects involves a comprehensive survey of commercial peach and apple orchards, obtaining information on numbers of trees by varieties, by ages, and by counties; also, information regarding production by varieties and marketing practices currently in use. This undertaking, which should serve as an aid to improve distribution methods and orderly marketing of fruits, will be financed through Federal funds made available to the State Department of Agriculture under the Agricultural Marketing Act.





The second of these projects is in the nature of a research project experimenting with methods for improving our present basis for estimating acreage and production of commercial vegetables, and to provide statistics by areas within the state. A scientifically selected sample of vegetable growers will be circularized by mail for individual farm information, and a sample of the non-respondents will be interviewed by field enumerators in obtaining unbiased sample information from growers of these perishable crops in North Carolina. This project is being financed by an allocation of additional funds from our Washington office. It is hoped that it will lead the way towards improved accuracy of crop statistics, not only in North Carolina but for the country as a whole.

The question sometimes arises as to why crop and livestock reports are needed. The following are just a few of the many reasons:

- (1) A man's judgment is no better than his facts, and crop reports are the basic facts of agriculture.
- (2) They aid farmers in planning their production and marketing.

- (3) They are essential in enacting wise legislation affecting agriculture.
- (4) They are the basis for analysis of agricultural and other business conditions.
- (5) They enable railroads to make a better distribution of cars for moving farm products.
- (6) They are a check on fluctuation in price. Uncertainty of supply promotes undue fluctuation in price.
- (7) They are indispensable in times of war because food is as essential as ammunition and weapons of war.
- (8) They are the best basis for adjusting supply to demand which is highly essential if maximum price is to prevail.
- (9) They aid farm organizations, schools and others in planning constructive programs, and the prospective purchaser of land.
- (10) They eliminate the ill effects of misleading reports that might be circulated for private gain if there were no official reports.
- (11) They are a guide to farm resources and for developing new resources such as irrigation, electric power, location of food-processing and other factories.
- (12) They reduce the amount of speculation in farm products. Speculation thrives on uncertainty. Unbiased official crop reports reduce uncertainty which limits speculation.
- (13) They indicate potential buying power, thereby enabling the manufacturer to meet probable demand. With economical production and distribution, the manufacturer can sell at a lower price than he could with uncertain demand.

TEST FARMS DIVISION

CECIL D. THOMAS

Director



CECIL D. THOMAS

During the biennium, the Test Farms Division continued its role of operating eight Department of Agriculture test farms and supervising eight Agricultural Experiment Station research farms. This function involves the general direction of all farming operations in support of the experimental program allocated to the various units. Budget management is an important function of the Test Farms Division, as is the coordination of all activities pertaining to purchase of supplies and equipment, maintenance of equipment and facilities, selection and employment of personnel, and other matters involved in operating research farms.

The research program is under the direction of the Agricultural Experiment Station at State College, and research at each test farm is a part of the total program for the state. The United States Department of Agriculture participates, largely through the Agricultural Experiment Station. The Tennessee Valley Authority contributes to certain projects—particularly at the Mountain Test Farm. In some instances commercial concerns participate in research to some extent, both by financial support to given departments and by furnishing specialized equipment and facilities at certain stations.

There were several personnel changes during the biennium. R. E. Currin, Jr., in charge of the Upper Coastal Plain Test Farm, retired late in 1952, after a long period of service; and Warren H. Bailey was appointed Superintendent to succeed him. The position of Administrative Assistant was established in the Test Farms Division, and is occupied by Everette Nichols.

Plans were made for relocation of the Piedmont Test Farm and a tract of land consisting of 1,013 acres has been purchased in Rowan County near Barber's Junction. It is anticipated that experimental work now being conducted at Statesville will be moved to the new unit during the next biennium, and the Piedmont Test Farm property at Statesville will then be sold. The new station will have, in addition to its present program, a dairy

project formerly conducted on the College Dairy Farm in Iredell County.

During the past two years, many improvements have been made to facilities at the various units. In several cases, structures have been erected for specific research needs. A number of general farm facilities have been added, such as dwellings, grain storage, machinery storage, and irrigation facilities.

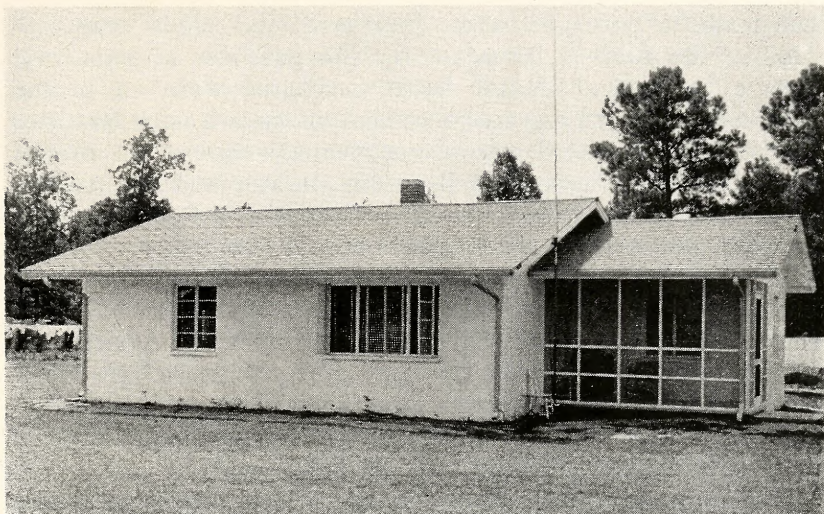
The farm machinery and equipment situation has improved a great deal during the past few years. It has been possible to purchase much equipment that was formerly leased, and to replace much old equipment with new and improved items. There will be a continuing need for certain replacement items of machinery to maintain the proper level of operating efficiency. The maintenance program, under the supervision of the Division's Agricultural Engineer, has been successful in providing better care for machinery and equipment. This program is paying dividends in lengthening the life of equipment and insuring greater operating efficiency of machines.

Generally speaking, total needs for additional facilities at the test farms for the next biennium are less than for the past biennium, with the exception of the new Piedmont Test Farm. At this location, it will be necessary to carry out a large building and improvement program. The only usable buildings on the property are three dwellings and one general barn. Buildings needed are: Dwellings for personnel, office and utility building, machinery storage, dairy buildings, and beef cattle barns. Water and sewerage systems will also be needed. For the livestock program it will be necessary to develop a large pasture acreage, and to fence and cross-fence the pasture.

TIDEWATER TEST FARM—PLYMOUTH

J. L. REA, *Assistant Director in Charge*

The Tidewater Test Farm was established to serve the agricultural needs of the Tidewater area of North Carolina. It is located five miles east of Plymouth, on U. S. Highway 64, and consists of 495 acres of cleared land in the main farm, with an adjacent tract of 1500 acres of cut-over or partly wooded land which was purchased to take care of any future need for land in the development of the livestock projects—particularly with beef cattle. The farm is fifteen feet above sea level and the average rainfall is 55.19 inches annually.



Concrete block dwelling (Tidewater Test Farm).

Of the 495 acres, 226 are classed as crop land and 179 are in pasture. There are 43.5 acres in field plots and 118 acres in other research, making a total of 161.5 acres assigned to research.

During this biennium, many of the buildings were painted and repaired. A bathroom was installed in one of the tenant houses, and gutters and a brick garage were added to the manager's residence. A wood-frame implement shed built of materials salvaged from old structures, one five-room concrete block tenant house, a platform hay drier, and two metal grain bins were erected during this period. Approximately 570 tons of crushed stone were placed around the barns to compact and stabilize the ground. Shallow wells were dug for irrigation, and fences were repaired and replaced.

The management endeavors to increase pasture land and improve the soil and drainage as fast as funds will permit. In 1953, thirty-one acres of land were cleared and seeded to pasture. Most of the pasture and crop land has recently been limed.

There are four permanent laborers, in addition to the foreman, herdsman, and superintendent living on the Station. Temporary labor is hired to handle special jobs as the need arises.

At one time, a considerable amount of equipment was leased from one of the machinery companies. However, an effort has

been made to purchase rather than rent, and funds were provided in the 1952-54 biennium for the purchase of important items of equipment. Major items purchased were: A pickup truck, a 32 foot corn elevator, a cement mixer, a tractor fertilizer attachment, a tractor-drawn wagon, two gas engines, an electric motor, a combine, a corn sheller with elevator and cob stacker, a tractor with one-row cultivator and mower, a Roto mower, a hay rake, and a 1,000-gallon gas tank and pump.

Research work at the station is carried on under a cooperative arrangement between the North Carolina Agricultural Experiment Station, the North Carolina Department of Agriculture, and the United States Department of Agriculture. All labor, fertilizer, land, and equipment are furnished by the State Department of Agriculture. The Experiment Station supplies technicians for the experimental and scientific work.

The Agronomy Department's main projects deal with testing corn hybrids for adaptability and resistance, weed control with corn, comparison of anhydrous ammonia with solid nitrogen for corn, effect of cropping practices on drainage and soil structure, soil fertility work, chemical control of weeds on drainage ditches, and fertilizer studies with forage crops and legume inoculation studies.

The Department of Horticulture's program includes experiments on Irish potato varieties, planting, seed decay, spacing, and wilt rot; disease resistant sweet potato varieties; muscadine grape varieties and cultural practices; and the production and planting dates of celery.

The Department of Animal Industry is engaged in two intensive long-term projects affecting beef cattle and sheep. Studies with beef cattle include wintering of beef cattle on different legumes with pasture grasses, fattening studies, parasite control, native range studies, quality of vegetation on burned and unburned ranges, and the digestibility of cane forage. The sheep project deals in sheep nutrition and sheep management studies with the view of producing early market lambs.

Since drainage is one of the essential farm practices in the area, this station is devoting a great deal of time and funds toward drainage research which should be of much value to the farmers in the Tidewater section. During the last biennium, the Bureau of Plant Industry and the Soil Conservation Service of USDA cooperated with the Agricultural Engineering Department of the North Carolina Experiment Station in the following

drainage studies: Data analysis, rainfall, tile drainage, check plots, blasted ditches, single bed drains, draw-down pumps, a new tile installation for general drainage, effect of cultural drainage and management practices, tile two, three, and four feet deep, under drainage, drainage plot yields, influence on water table and obnoxious plants in drainage ditches. There are 106.3 acres under drainage experimentation at present. About 80 acres on the main station now used for experimental purposes have been tile drained during the past few years. It is hoped that funds can be provided annually to continue this work until all cultivated land that is practical to drain by this method has been tile drained.

Very little general farming is carried on at this station other than to utilize the land that is being held for future research work. Land available for general farming is used to produce feed and forage.

Some certified seeds, particularly soybeans, are produced for distribution to interested farmers. Surplus rams and ewes are sold for breeding. All surplus grain, seed, and livestock are disposed of to the best advantage possible. Seed cleaning, and assistance to those interested in locating farms for beef and dairy cattle, are among the public services rendered.

In 1952 a field day on drainage was held at this station. Great interest was shown and approximately 300 people attended. In 1953 a field day on forage and livestock brought an equal number of interested farmers to the station. Special groups such as veteran classes, vocational agriculture classes, 4-H clubs, livestock judging classes, Farmers Home Administration, and district soil conservationists visited the station frequently. During the last biennium about 3,000 persons made personal contact with the farm by telephone, correspondence, or visits. The superintendent participates in many outside activities pertaining to general farming, research, and drainage. He is called on to make tours of the farm at the convenience of visitors, lecture to classes, give advice and information and make public talks on agriculture.

PEANUT TEST FARM—LEWISTON

CLYDE Z. MCSWAIN, JR., *Assistant Director in Charge*

The Peanut Test Farm, established in 1952, is located at Lewiston in Bertie County. It has an elevation of 50 feet above sea

level and the average annual rainfall for the area is 46 inches. The test farm consists of 366 acres of land considered to be representative of soil conditions found throughout the peanut growing area of North Carolina. Principal soil types are Norfolk and Goldsboro sandy loams and Faison and Duplin sandy loams.

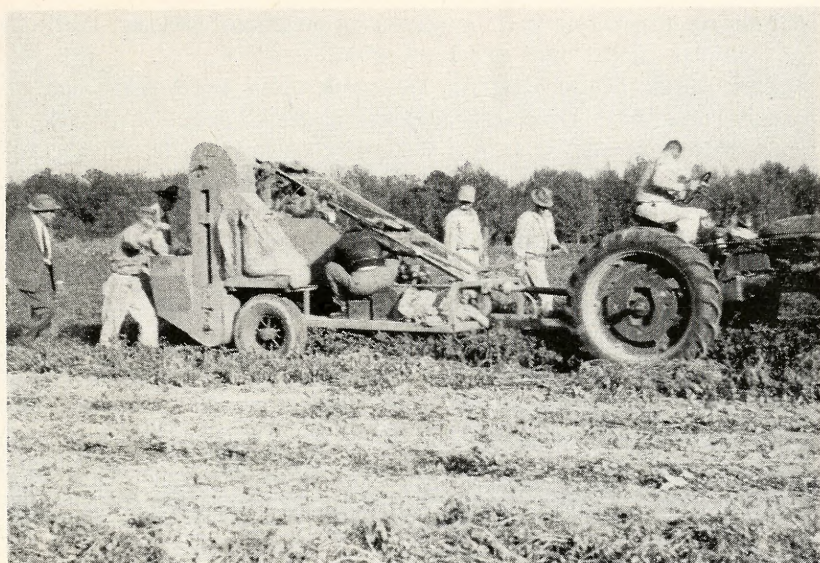
Of the 366 acres, approximately 80 were in cultivation when the tract was bought. About 50 acres of the woodland have been partly cleared and approximately 15 acres have been completely cleared and made ready for crops. Another wooded tract has been cleared and is to be used for the building site. The land clearing program consists of two major operations; first, uprooting all types of growth, and then returning after the material has dried to pile and burn the trees. Approximately 120 acres of woodland are to be cleared and placed into cultivation. A TD-14 with a dozer blade, a grubber blade, and a heavy bush and bog harrow were purchased for this development program. In cooperation with the Agricultural Economics Department of State College, records are kept of all time and expenses required for each tract cleared. The study should show the cost of each operation and the costs involved in clearing land to a given stage of development.

Since the last report, 11,000 feet of open ditches for drainage have been added and 3,850 feet of tile were placed in the wet cropland areas. As the land clearing program continues, each new tract will be carefully surveyed for drainage needs and the appropriate type of drainage will be applied.

During the biennium construction was begun on a number of new buildings. Included were three laborers' dwellings, a dwelling for the superintendent, and a shop and machinery storage building. A utility building containing office space, a laboratory, and a work room is also under construction. A building now used for the office will be converted to a laborer's dwelling, making a total of four houses for the farm labor force.

Along with the bulldozer, other items of equipment purchased during the biennium were a 1½ ton truck, a medium-sized tractor with cultivators, planters, disk harrow, and rotary hoe, and shop and other miscellaneous equipment.

The research program is under the direction of the North Carolina Agricultural Experiment Station and is aimed primarily at problems of the peanut. However, experimental work with other crops is included in the total program in an effort to meet as nearly as possible the needs of the area.



Experimental work with peanut combine (Peanut Test Farm).

A major agronomic experiment underway at the station is a long-time rotation study involving numerous crops. This represents an effort to determine the most suitable rotation or rotations for peanuts. A broad program of peanut genetics and peanut breeding is directed toward developing superior peanut varieties. Also work is being done on soil fertility, soil conditioners, and cover crops. One demonstration plot of peanuts is maintained each year on which the latest recommended practices are used.

In addition to the work with peanuts, variety tests on advanced lines of corn and cotton are conducted each year. Along with research on the production phases of peanuts and other crops, much attention is being given to insect and disease problems. The Pathology Department is dealing with seed treatments, leafspot control, and other diseases. The Entomology Department is studying control measures for the southern corn rootworm, which causes much damage to peanuts, and other insects and pests.

Mechanization of peanuts, particularly the harvesting phase, is being studied by the Agricultural Engineering Department. Investigations are centered around mechanical harvesting and

increasing attention will be given to artificial drying methods for peanuts after they are harvested.

After land is allocated for research plots each year, the remaining acreage is planted to general farm crops. Corn is the usual general crop, as it fits well in rotation with peanuts and places light demands on the station labor. Recommended practices are followed for all crops in an attempt to operate as a demonstration of better farm methods for the benefit of the farmers of the area. During the past two years interest has grown in the use of rotary hoes, close row spacing of peanuts, and the effects of tile drainage.

Many of the nearby agricultural agencies and organizations make use of the farm and its facilities for special meetings and programs. These agencies include Home Demonstration Clubs, FHA supervisors, County Agents, Vocational Agricultural Teachers, Soil Conservation Service, and Veteran instructors. The first peanut field meeting was held in 1953, with around 600 people attending.

In addition to the special field days, there are many visits from farmers and others interested in getting agricultural information. These visits are made individually and in small groups. When time permits, the superintendent attends farm meetings in the area in order to keep abreast of farmer thinking and current problems.

MOUNTAIN TEST FARM—WAYNESVILLE

M. R. WHISENHUNT, *Assistant Director in Charge*

The Mountain Test Farm, established in 1944, is located in Haywood County, two miles southeast of Waynesville. The farm consists of 388 acres with the following principal soil types: Hiwassee, Hayesville, Clifton, Halewood, and Masada. The topography is typical of the mountain area, with an average elevation of 2,800 feet above sea level. The average annual rainfall is 45 inches.

There are 96 acres of cropland, 126 acres of permanent pasture, and 85 acres of woodland. Seventy-two acres are devoted to field plots and other research work.

During the biennium one new laborer's dwelling was built, which makes a total of nine dwellings for farm personnel. A trench silo and a brick silo were constructed. Other buildings



Apple orchard site (Mountain Test Farm).

on the farm include an office, tobacco curing barns, tobacco grading barn, dairy barns, implement shed, granary, horse barn, and poultry houses. An apple orchard has been established on 11 acres of land. Several acres of pasture land were seeded and new fences built in the pasture area. White pine seedlings were planted on six acres of steep land.

Farm machinery and power include two trucks, three tractors, ensilage and forage harvester, side-delivery rake, lime spreader, manure spreader, combine, two wagons, planting and cultivating implements, two mules and horse drawn cultivators and plows. Nine families live on the farm including the superintendent, farm foreman, dairy supervisor, two dairymen, poultryman, and three regular farm workers. Additional temporary laborers are employed as needed.

The following agencies cooperate in the research program at this station: North Carolina Department of Agriculture, North Carolina Agricultural Experiment Station, United States Department of Agriculture, and Tennessee Valley Authority.

The Agronomy Department has experimental work in forage and pasture crops, corn, small grain, soybeans, cotton, and burley tobacco. This department and the Tennessee Valley Authority have a joint hydrologic project, which is on a watershed basis. Two of the watersheds are located on this station. The

Burley tobacco research program is in cooperation with USDA, and is centered around such problems as plant bed sources and rates of fertilization, chemical weed control in plant beds, and rates of seeding. In the field the work is on rates of fertilization, plant spacing, stage of topping, sucker control, priming, and variety evaluations.

The Horticulture Department has research work with apples which includes variety testing and fertilization.

The Dairy Department is carrying on research in calf-feeding, irrigation of pastures, land utilization, feeds for dairy cows, grazing studies and breeding.

Since this area is a large broiler and hatching egg center, research work in the Poultry Department includes breeding, egg production, hatchability, and feeding work.

All land and facilities not used specifically for experimental work are used for general farming to produce feeds for poultry and livestock on the farm, and to demonstrate recommended farm practices for farmers of this area to study and observe.

The dairy herd has increased in numbers. However, several heifers, cows, and bulls have been sold to dairymen of the area. Other sales to farmers include tobacco plants, and poultry. In addition to regular field meetings, the farm is visited by individual farmers, 4-H Club groups, Vocational Agriculture classes, Veterans' classes, test demonstration groups, and others who visit the station regularly for information and to observe the work in progress.

Departmental field days are held annually. These are: Livestock and Forage Crop Field Day, Tobacco Field Day, Poultry Field Day, Alfalfa Field Day, and Corn Field Day. The field days are well attended by farmers, who have an opportunity to learn and see the latest experimental results and recommendations.

Meetings in this area pertaining to the work at this station are well attended by the Assistant Director in Charge of this station. The farm cooperates with all agricultural agencies of the area in various agriculture programs.

COASTAL PLAIN TEST FARM—WILLARD

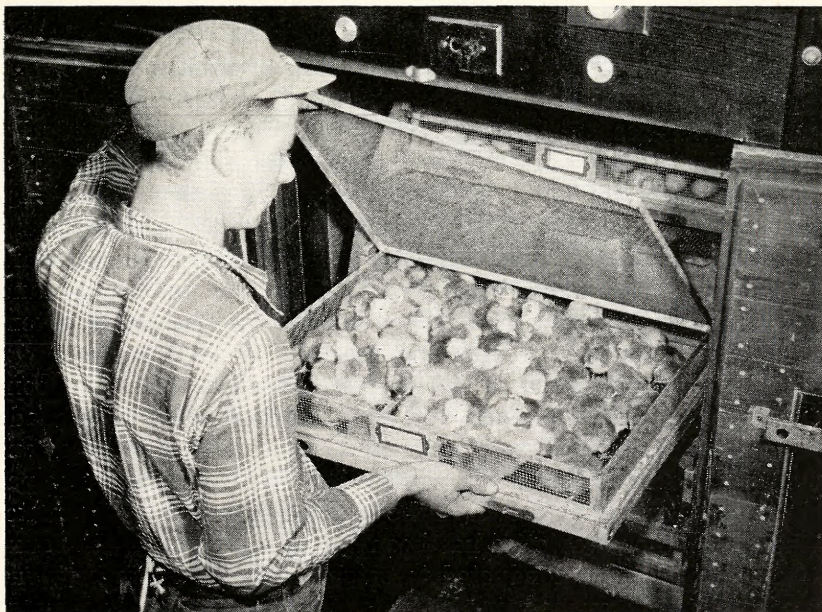
JESSE W. SUMNER, *Assistant Director in Charge*

The Coastal Plain Test Farm, established in 1905, is located one mile north of Willard and two miles south of Wallace in Pender County. Its elevation is 51 feet above sea level, and it has an average annual rainfall of 48.9 inches.

The station's 401 acres of predominately Norfolk sandy loam are divided into 149.8 acres of pasture, which is used for dairy cows and plots for cooperative dairy forage research; 123.9 acres of crop land, of which 28.1 are used for plots and other research, with the remaining crop land devoted to general crops producing feed for poultry and for dairy cows; 81.5 acres of woodland; and 45.8 acres of roads, buildings and an irrigation pond.

Buildings on the station range from small poultry buildings to a large dairy barn, and include nine dwellings for station personnel. During the biennium three dwellings, a modern corn storage building and a 64-foot extension to the poultry brooder house were constructed. During the spring of 1954 a five-acre irrigation pond was built, which will supply approximately 16 acre feet of water.

The station has progressed steadily toward mechanization, and now operates four farm tractors. Other major equipment consists of an ensilage cutter and blower, hay baler, combine, irrigation system, elevator, rotary mower, hay rake, and necessary plowing and cultivating equipment.



A new hatch of Willard Reds (Coastal Plain Test Farm).

At the end of the biennium there were nine families living on the farm. These include the superintendent, foreman, dairy supervisor, poultryman, poultry assistant, two dairy assistants, and two general farm workers. Three to six additional temporary workers are used as the work requires.

Station activities involve work with research projects and public relations activities, such as holding field days, giving instruction to groups of veterans, and dealing with farmers and other visitors of many types. The research program is conducted by the North Carolina Agricultural Experiment Station with the United States Department of Agriculture cooperating. The four principal classes of research are: Dairy and forage crops, poultry, horticulture, and agronomy.

The dairy and forage crops research project is a cooperative project between the North Carolina Department of Agriculture, the North Carolina Agricultural Experiment Station and the Bureau of Dairy Industry of USDA. A study of pasture production and maintenance, with a view to determining the best rotation and management in providing constant, year round pasturage for the herd, is carried out in this field of activity. Another phase of dairy research relates to breeding for higher milk production. Herd production has been increased both as to quantity of milk and amount of butterfat. Work is also being conducted to find a better and more economical way of raising calves.

During the past two years the following phases of poultry research have been under way: Breeding for superior Rhode Island Reds, hatching of birds at various seasons of the year for a uniform supply of hatching eggs, free-choice system of feeding, and holding eggs under controlled temperature and moisture conditions for hatchability and egg quality studies. The mechanically cooled egg room has proved to be both economical and practical for maintaining market quality and hatching potentials during the hot summer months.

Strawberry research, a horticultural project, has been continued during the biennium and new selections have been made and tested. Selections previously made and introduced have continued to demonstrate their worth. They serve as the principal commercial varieties grown in the southeastern part of the state. The use of these varieties has been spreading through the country. Work is being conducted to establish selections to be virus free. Muscadine grape work consists of measuring yields of pres-

ent varieties and testing new varieties. Studies are under way to determine better pruning and management methods.

Agronomy research consists primarily of testing corn hybrids produced from the Experiment Station's breeding work, soybeans originating from the soybean breeding program, and new productions from other states.

The station serves the general public by selling purebred bull calves from the herd at a price based upon the age of the calf, the production of the dam, and on a level the farmer and dairyman can afford. Through this plan fine Jersey bull calves have been distributed over the area, and investigations show an increase in the quality and production of dairy stock through the territory. The poultry plant sells hatching eggs, baby chicks and cockerels, and occasionally pullets as they may be needed by poultrymen of the section for starting and augmenting their flocks. The station plays its part in the development of a large poultry industry in the southeastern part of the state.

Much has been done of an educational nature. Special consideration has been given to classes of vocational agricultural students, veterans' agricultural classes and to 4-H and FFA boys who meet for instruction in judging dairy cattle and poultry. In addition to these special meetings and classes, many farmers and other interested individuals make visits to secure agricultural information. In cases when information is not readily at hand, the party is referred to a specialist or division of the agricultural service which can give him assistance needed. Attempts are made to bring these specialists together with the farmers by annually holding a series of field days, each devoted to a particular subject such as dairying, poultry and agronomy.

Much correspondence is handled by the station, giving information in response to inquiries from farmers and others about agricultural matters. Station personnel participate in various types of agricultural and public meetings, and for the benefit of individual visitors the farm provides information verbally, by demonstration and through the meetings mentioned above.

PIEDMONT TEST FARM—STATESVILLE, N. C.

J. W. HENDRICKS, *Assistant Director in Charge*

The Piedmont Test Farm, established in 1903, is located in Iredell County, one mile west of Statesville, on Highway No. 90. The elevation is 950 feet above sea level. The climate is mild,

with an average annual temperature of 61 degrees during the past 10 years, and an average annual rainfall of 46.31 inches.

The station contains a total of 352 acres, of which 133 were federal-owned until the spring of 1954, when the federal land was deeded to the state. There are several soil types with Cecil clay and sandy loam predominating. At present 142 acres are devoted to general crops, 131 acres are in pasture, and there are 19 acres of woodland.

Buildings include an office, headhouse, two greenhouses, storage and dry house, shop, cotton storage, cotton gin and seed storage, foreman's cottage, three barns (one each for sheep, cattle, and mules), a combination granary, fertilizer, and small grain storage, seed cleaning building, and two pavilions used for storing farm implements. In addition, there are a superintendent's residence and five tenant houses, all of which are old, inadequate, poorly constructed, and not worthy of expenditures necessary to put them in livable condition.

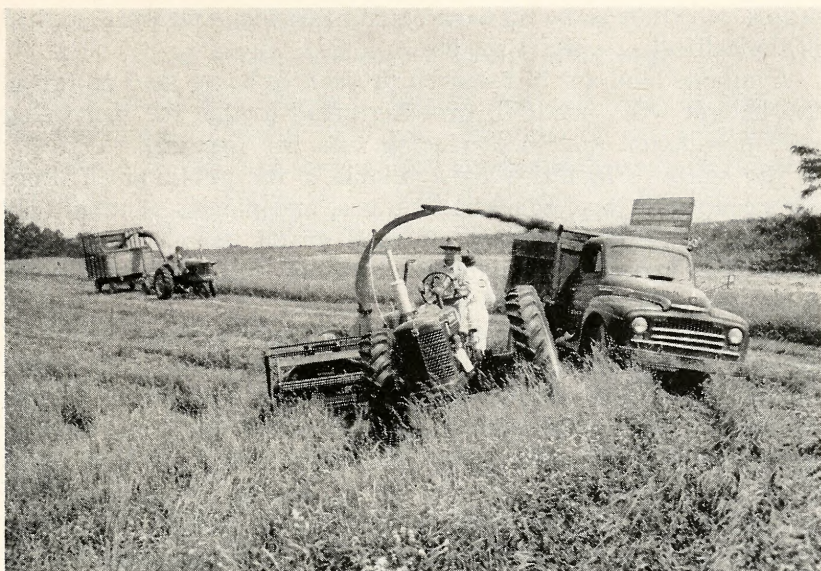
Realizing that a good pasture is a livestock farmer's greatest asset, the management has endeavored to increase the station's pasture program and has developed some of the finest pastures to be found in this section. Not only is there an outstanding blue grass, white clover, and bermuda sod, but during the past few years 70 acres have been planted in Ladino and orchard grass.

The station is rapidly changing to mechanized equipment and is fairly well supplied with machinery to carry on the type of work now being conducted. There are some uses yet for a limited amount of horse-drawn equipment, particularly in some of the smaller fields and plot work.

There are five families living on the unit and they furnish most of the labor for operations. Some additional part-time workers are employed during the planting and harvesting seasons.

The research program is a cooperative endeavor in which the North Carolina Agricultural Experiment Station, the United States Department of Agriculture, and the North Carolina Department of Agriculture participate. It is the function of the State Department of Agriculture to furnish facilities including land, fertilizer, and labor for the preparation of seedbed, planting, cultivation, and harvesting.

The research program is under the direction of the North Carolina Agricultural Experiment Station, which outlines projects, supervises planting and harvesting, and compiles results.



Field forage harvester (Piedmont Test Farm).

The experimental work deals largely with livestock and crops.

The livestock program consists primarily of studies on grazing small grain (oats and barely) with sheep to determine the effect on yield by seeding earlier than usual, using a heavier application of fertilizer, and a heavier rate of seeding. A breeding flock of 45 ewes is carried, and with lambs and yearlings the flock totals 85. Surplus rams and ewes are sold for breeding.

Plans have been completed for a winter grazing project and 85 steers have been added for this purpose. For the past two years steers have been purchased in August and carried through the winter primarily on permanent pastures, supplemented from January 15 to March 1 with temporary grazing of small grain and 1,000 pounds of hay or 2,000 pounds of silage per animal. The results of this work are most encouraging, both with reference to total gain in live weight and the quality of beef produced.

Research work with crops consists of studies of alfalfa and clover varieties, corn hybrids, cotton breeding, lespedeza, small grain (breeding, variety, testing, and diseases), soybeans, sesame, sweet potatoes, castor beans, and grain sorghum. Consid-

erable work is also being done on soil fertility, and weed control is the subject of special studies.

Available land not in research projects is being used as far as the budget will permit in growing small grains for increasing seed production and in producing feed for livestock.

The station's facilities are available to the public at all times for group meetings, educational tours, and picnics. Annual field meetings include the study of small grains, corn, cotton, pastures, and legumes. Attendance at special meetings during the fiscal year 1953-54 was 2,500.

Some 25 special groups such as county groups, veterans' classes, vocational agriculture classes, 4-H Clubs, FFA, high school and college classes, fertilizer groups, and others visited the station during the same period. Various individuals visiting the farm average about 2,000 annually. During the past biennium the station has been honored in having as special guests agricultural representatives from Peru, Brazil, Germany, France, Belgium, Norway, Sweden, Denmark, Holland, Japan, Italy, Canada, India, and the Philippine Islands.

Visits and meetings with farmers and other agricultural groups off the farm numbered 125 during the fiscal year 1953-54.

In 1953 a tract of land consisting of 1,013 acres located near Barber's Junction in Rowan County was purchased. This will provide for a relocation of the Piedmont Test Farm and a consolidation of its present program with that of the College Dairy Farm which was operated near Statesville.

Possession of this new property was gained January 1, 1954, and already considerable preliminary work has been accomplished preparatory to moving certain phases of the research program in the fall of 1954. A relatively large block of cropland has been reshaped by the addition of meadow strips and lateral waterways, in preparation for a layout of blocks of land for experimental plots. Meadow strips occupy six acres, 48 acres are seeded to soybeans, and 60 acres are being cultivated for the control of obnoxious weeds. Fifty acres of pasture have been top dressed and a total of 103 steers are on the pasture for utilizing the growth until the livestock research program is started.

The research program at the new station will be rather large and of a broad nature. In addition to experimental work with a large number of field crops, the program will include dairying, and studies with meat animals.

TOBACCO TEST FARM—OXFORD, N. C.

J. M. CARR, *Assistant Director in Charge*

The Tobacco Test Farm is located one mile west of Oxford, the county seat of Granville County. This station was established in 1912 on an original tract of 250 acres which was enlarged to 330 acres by the purchase of an 80-acre tract in 1941. In 1953, 18.84 acres of this 330 acres were exchanged with the City of Oxford for a similar acreage located adjacent to the 80-acre tract.

The farm has an elevation of approximately 500 feet above sea level, and its soils are principally of the Durham, Colfax, and Enon Series. Rainfall for the year July 1, 1952 to June 30, 1953 was 59.14 inches; and 37.37 inches from July 1, 1953 to June 30, 1954. The mean annual rainfall for the 33-year period 1921-54, is 44.37 inches.

Land use of the 330 acres varies from year to year but is approximately as follows: 50 acres in research field plots, largely tobacco; 70 acres in general field crops; 132 acres woodland; 53 acres of pasture; and 25 acres in building sites, roadways, etc.

Buildings include a brick office and laboratory, two greenhouses and insectory, which are federally owned. State buildings include 10 dwellings, one graduate student apartment, 15 tobacco-curing barns of various types and construction, one mule barn, one cow barn, two tobacco packhouses with grading rooms, one large machine shop and laboratory building, one machinery shed, one tractor storage shed and numerous small buildings.

During the biennium improvements in facilities included the installation of septic tanks for two dwellings and the installation of bath, hot water and disposal system in one dwelling. Research facilities were increased by the construction of a battery of 16 small tobacco curing units, each with a capacity of 18 sticks of tobacco. This addition fills a long felt need for some means of curing small quantities of tobacco. A second greenhouse, approximately 30 by 64 feet in size, was built in the spring of 1954.

Improvements to land facilities have been made by resoiling eroded places, clearing hedgerows, preparing and seeding waterways, and fencing and seeding about 16 acres of Ladino-Fescue pasture. The land exchange with the City of Oxford increased the area suitable for research by approximately eight acres.

All farm operations except sledding tobacco from the field are done by tractor power. All leases of farm equipment have been

terminated and the present equipment is owned. A permanent force of seven laborers and one foreman is kept throughout the year. Seasonal laborers are hired from nearby Oxford and from families of men living on the farm.

The Tobacco Test Farm is operated cooperatively by the North Carolina Department of Agriculture, the North Carolina Experiment Station, and the U. S. Department of Agriculture. Under this cooperative arrangement, the North Carolina Department of Agriculture is charged with the responsibility of furnishing land facilities, labor, and supervision in growing and harvesting the crop. The Superintendent's duty is to coordinate the work of the various agencies and facilities. The North Carolina Experiment Station and the U. S. Department of Agriculture furnish technical equipment and scientific personnel to complete the program.

Four general lines of research are in progress as follows: Agronomy, pathology, engineering, and entomology. All of these departments of research are conducted cooperatively by the North Carolina Experiment Station and the appropriate branches of the Agricultural Research Service of the U. S. Department of Agriculture.

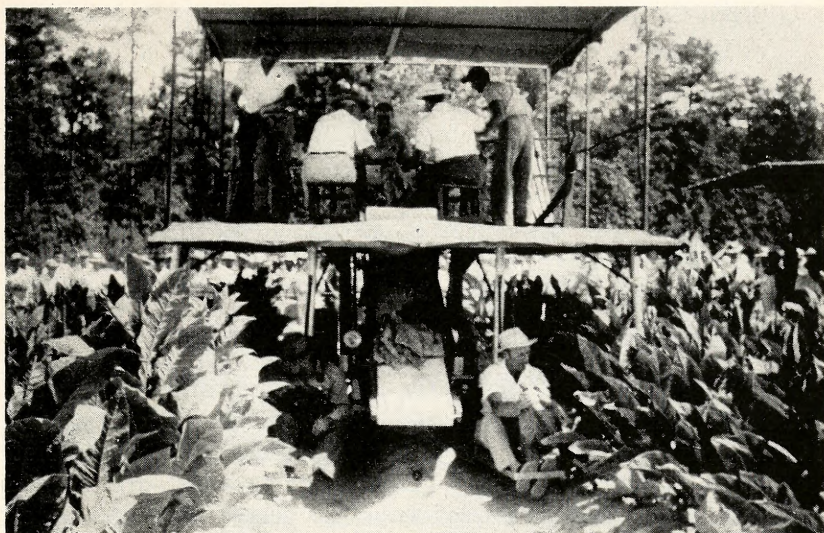
The agronomy program includes studies on nutrition of the tobacco plant, fertilizer placement, management of hail damaged crops, and the influence of irrigation on fertilizer requirements of tobacco.

The pathology program is largely concerned with the development of disease resistant varieties and studies of the soil nematode population as related to field damage to the tobacco crop.

Engineering research deals primarily with the behavior of the tobacco leaf when subjected to various conditions of heating and drying. Other phases of engineering as applied to tobacco production include irrigation and mechanization of harvesting and curing.

Entomologists are particularly concerned with insecticide residue and the possibility of biological control of tobacco insects.

General farming operations are gradually being reduced to only those enterprises that best fit with the heavy load of tobacco research. Much of the land not suitable for tobacco is gradually being fenced and seeded to pasture and a herd of beef animals is being increased to make use of these pastures. This seems to be the most efficient and economical use of land not



Tobacco harvester demonstrated at field meeting (Tobacco Test Farm).

suitable for plot work. Very little corn or other row crops are planted as cultivation and harvesting conflict with tobacco. Oats, which do not compete so seriously with tobacco for labor, are being used as hay, cover, and grain crops. Only two mules are kept while the beef herd has been increased from 12 to about 40 head.

In addition to the research program, certain public services naturally falls to the lot of the station staff. During the growing season identification of diseases on specimens of tobacco take up much of the pathologist's and superintendent's time. During the winter months growers bring in home grown tobacco seed for cleaning. Approximately 550 pounds of seed in small lots were cleaned during the biennium.

Field meetings conducted by Tobacco Extension Specialists are held for three days each year about the middle of July. In 1952 approximately 1,770 visitors attended these meetings. The 1953 attendance was about the same. Total visitors in 1952-53 numbered 3,584 and in 1953-54 more than 3,800 people visited the station. These figures include field day visitors, veterans' classes, North Carolina State College classes, foreign groups and individuals. In addition to visitors the staff is often called upon to talk to farm study groups.

UPPER COASTAL PLAIN TEST FARM—ROCKY MOUNT

WARREN H. BAILEY, *Assistant Director in Charge*

The Upper Coastal Plain Test Farm, established in 1902, is located in Edgecombe County, six miles southeast of Rocky Mount on the Noble's Mill Pond Road. The elevation is 100 feet above sea level, and the average annual rainfall is 45 inches.

The soils of the farm are representative of the surrounding area, which include Coxville, Craven, Dunbar, Duplin, Goldsboro, Jamison, Lenoir, Lynchburg, Marlboro, Myatt, Norfolk, Rains, Ruston, Shubuta, and Stough. The 441.9 acres contained in the farm are divided into 247.9 acres of cropland; 8.2 acres of improved pasture; 128.7 acres of woodland; and 57.1 acres of roads, buildings, ponds, etc. Of the 247.9 acres of cropland, 175.4 acres are used for research plots, and in 1953 these plots consisted of the following: Peanuts, 64.3 acres; cotton, 41.1 acres; tobacco, 14.5 acres; soybeans, 7.3 acres; corn, 28.5 acres; small grain, 2.8 acres; sweet potatoes, .8 acres; forage crops, 4.5 acres; and rotations, 12.1 acres. In addition to the research plots, 58.2 acres of general crop corn was grown for the swine project.

In addition to the superintendent's, foreman's and herdsman's dwellings, the farm has five good laborer's dwellings and two, due to age, that are in poor condition. During the biennium a new combination shop and implement shed was constructed. Three 1,300-bushel steel grain storage bins were erected near the crop-drying building to relieve the shortage of grain storage space on the farm.

Several repairs and alterations were made to the superintendent's, foreman's and herdsman's dwellings, and most of the buildings on the farm were painted. A four-acre pond for irrigation was constructed on the southeast side of the farm. On the northwest side of the farm, an adjoining land owner built a 50-acre lake which backs water on fifteen acres of station property. For use of this acreage, the station is to receive irrigation rights.

A complete survey was made by the U. S. Soil Conservation Service to determine what could be done to conserve the soil and better utilize the land of the station. As a result of this survey, several fields have been reshaped, a number of meadow strips built and seeded, and several acres seeded to pasture. Plans have also been made for tile drainage as well as additional meadow strips and pastures.



Cotton picker in operation at 1953 field meeting
(Upper Coastal Plain Test Farm).

Realizing that labor is becoming more and more expensive and harder to obtain each year, every effort has been made to purchase machinery that would reduce the labor requirements of the station. Therefore, tractor power has replaced all but one team of mules. The major items of equipment include four tractors, with cultivators and other necessary tillage tools, corn picker, corn husker and sheller, peanut picker, hay-baler, two tractor dusters, one tractor sprayer, and two tractor wagons. The farm's transportation consists of two pick-up trucks.

Five permanent laborers and three temporary laborers live on the station. Additional labor, when needed, is obtained from the laborers' families.

Developed and supervised by the Agricultural Experiment Station, the research program consists of a number of crops experiments and also swine studies.

Agronomy projects include variety and hybrid tests; experiments on residual effects of corn stover; peanuts, soybeans and cotton breeding; and several rotation and fertilization studies involving corn, cotton, peanuts, soybeans and tobacco. Experiments conducted by the Agricultural Engineering Department include harvesting, row spacing, cultivation, weed control, and peanut drying.

The Plant Pathology Department is conducting research studies on disease control in cotton, peanuts, tobacco, soybeans, and sweet potatoes. An experiment to determine the effects of winter cover crops and winter management on nematodes in tobacco has also been set up by this department. Research by the Entomology Department includes insect control and residual effects from insecticides on peanuts, tobacco, cotton, corn, and soybeans.

The swine project, supervised by the Department of Animal Industry, is devoted to breeding, feeding and management studies.

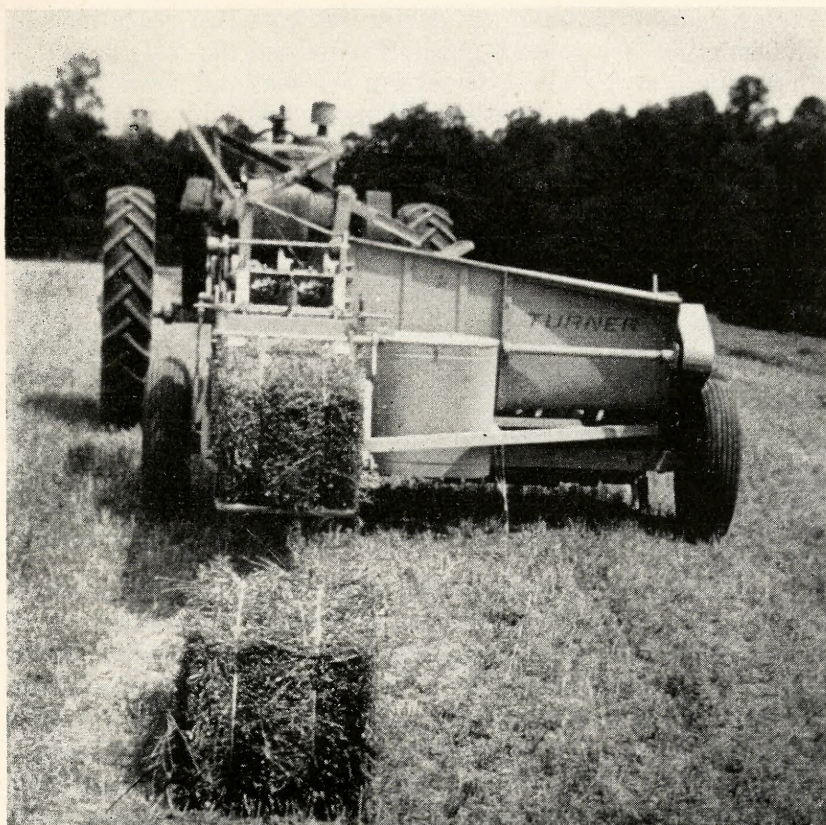
In addition to supplying facilities for the research program the farm performs additional services to the community by selling hogs to farmers so they can improve their herds; serving as a laboratory for 4-H Clubs and Vocational Agriculture groups; welcoming individual visitors in search of answers to specific problems and holding separate organized field meetings. A tobacco field day is held each year to give interested persons a look at the work being done here. The first annual cotton field day was held on September 22, 1953, and featured speeches by several prominent individuals; mechanical harvesting demonstrations; a field tour of cotton plots involving insect control, rotation and fertilization, soil fumigation, breeding and variety tests, seed treatment and boll rot studies, and planting and weed control. Over 2,000 people attended.

UPPER MOUNTAIN TEST FARM—LAUREL SPRINGS

DANA F. TUGMAN, *Assistant Director in Charge*

The Upper Mountain Test Farm is located in the Transou Community of Ashe County, three miles west of Laurel Springs. The elevation on the farm ranges from 2,800 to 4,000 feet. However, the average elevation of the vicinity is approximately 3,000 feet. The average annual rainfall in the area is approximately 52 inches.

The station was established in 1944 on a tract of 412.5 acres. Purchases since that time of adjoining tracts of 8.2 acres in 1950 and .3 acres in 1954 make a total present acreage of 421. Of that acreage, 140 acres are in permanent pasture, 87 acres in cropland, 78 acres in woodland, and 115 acres devoted to field plots and grazing research. The principal soil series are Watauga silt loam, Watauga Stony silt loam, Clifton stony loam and Tate gravelly loam.



Pickup hay baler, used at the Upper Mountain Test Farm.

Buildings and structures essential to the program being conducted include—beef cattle barn, sheep barn and general purpose barn; four 70-ton silos; hay storage shed; tobacco curing barn with grading room and ordering pit; fertilizer storage house; one small building for insecticide, fungicide and grass seed storage; implement shed and shop; office building with assembly room and apple and potato storage facilities in the basement; superintendent's dwelling, herdsman's dwelling, foreman's dwelling and three laborer's dwellings. A 30 by 50 foot building of concrete block construction was included in the purchase of a .3 acre tract in 1954. This tract is located adjacent to the orchard and the building will be used for apple grading and storage, and as storage for orchard spray materials and sprayer.

Improvements to buildings during the past two years include the insulation of a tobacco grading room and the installation of a humidifier, heater and exhaust fan for heat and humidity control; and fluorescent lighting for more accurate grading and sorting of tobacco. New construction during the past two years consists of five combination garage-storage buildings for the laborers living on the farm, two 70-ton trench silos, one lined with cinder blocks and one with concrete, and one pole frame hay storage shed. Also during the past biennium 12 acres have been cleared, 10 acres of which were seeded to permanent pasture and the remainder used for fertility tests and forage crops research on previously untreated soil.

Farm machinery and equipment consists of one crawler tractor, two wheel tractors, orchard sprayer, pick-up hay baler, side delivery rake, mower, lime and fertilizer distributor, manure spreader, hay drier, bush and bog disc, tandem disc, one 1½-ton truck, one-half ton truck, and numerous essential small tools and implements.

The labor force consists of the farm foreman, herdsman and four laborers who live on the farm. Additional labor is employed during tobacco harvesting and apple picking seasons. A State College agriculture student is employed during the summer months to assist in the tobacco and horticulture work.

The research program at this station involves beef cattle, sheep, corn, burley tobacco, tomatoes, potatoes, pastures and forage crops, and is directed by the North Carolina Agricultural Experiment Station. Technical assistance and project leadership is supplied by Experiment Station and North Carolina State College personnel. The North Carolina Department of Agriculture furnishes land, labor, fertilizers and other material requirements.

Burley tobacco research is a cooperative endeavor involving the Tobacco, Medicinal and Special Crops Division of The Bureau of Plant Industry, Soils and Agricultural Engineering of the USDA, the North Carolina Experiment Station and the North Carolina Department of Agriculture. The corn program is a cooperative project of the Experiment Station and the North Carolina Crop Improvement Association.

Beef cattle research includes nutritional studies to evaluate various feedstuffs that farmers might have at their disposal, and to determine what combination of these feeds might be used



Small crawler tractor with blade, assists farming operations
(Upper Mountain Test Farm).

most efficiently in terms of adequate nutrition and economical beef production. The beef herd is also involved in the Regional Beef Cattle Breeding program of the USDA.

Cattle grazing experiments are being conducted in cooperation with the Agronomy Department to determine the value of pasture mixtures, with both continuous and rotational grazing, in terms of carrying capacity and pounds of beef produced. Sheep research is in the nature of an experimental breeding program to measure the comparative value of purebred, crossbred and western ewes in terms of lambs and wool produced. Another study superimposed upon the above experiment is a comparison of early versus late lambing in ewe productivity.

Burley tobacco investigations include variety evaluation with emphasis on disease resistance, particularly black-shank. Other phases of burley research deal with general management and field practices, such as the effects of various rates and analyses of fertilizer, varied plant spacing, stage of topping, priming, and the use of various mineral oil substances in tobacco sucker control.

The corn program, cooperatively conducted by the North Carolina Experiment Station and the North Carolina Crop Improve-

ment Association, consists of testing hybrids and open pollinated varieties for yield and quality and observation and evaluation of experimental breeding lines.

Pasture and forage crops research is concerned with the evaluation of Ladino Clover and orchard grass as pasture for livestock. A 100-acre tract, subdivided into 16 paddocks, is being used to study this and other pasture management problems. Also projects are being conducted to determine fertility requirements of Ladino Clover and to study the effect of exposure or slope on mountain pastures. Plots of various pasture mixtures and grazing strains of alfalfa are grown to determine their value. Other work in forage crops includes an alfalfa variety test, alfalfa fertility test, and a study of spring seeding versus fall seeding of alfalfa and pasture mixtures.

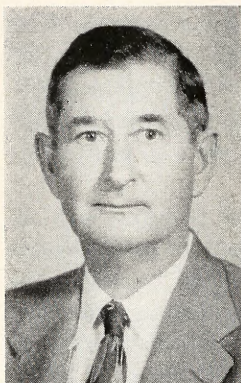
Horticultural research includes a project aimed at breeding a tomato variety with late-blight resistance. This project is in cooperation with the Plant Pathology Department and involves the production of over 900 varieties and breeding lines each year for observation and evaluation. Potato research is also a breeding project, involving over 600 breeding lines that are considered to be potential new and improved varieties. Orchard research for the past two years consisted of the evaluation of sprays thought to be effective in fruit setting and in fruit thinning.

General farming operations are primarily a feed production program for the livestock involved in research projects. Approximately 30 acres of alfalfa, 10 acres of Ladino Clover and fescue, and 10 acres of corn are produced annually to make 350 tons of silage and 100 tons of hay required for winter feeding of beef cattle and sheep. A breeding herd of 40 cows is maintained on the farm. However, replacement animals and young stock normally keep the herd total at about 100 head. The flock of sheep kept on the farm normally amounts to about 65 head, including 48 breeding ewes.

The farm has long been a source of disease-free tobacco plants for growers in the burley area. It has also furnished foundation breeding stock for beef cattle and sheep raisers. The herd and flock are also used by 4-H and F.F.A. groups in training livestock judging teams. District contests in livestock judging and sheep shearing are conducted here. The assembly room is a usual meeting place for community agricultural groups.

Field meetings are conducted each year to afford farmers and other interested persons an opportunity to observe results of work done here. During the past two years one corn field meeting, two tobacco field meetings and one livestock and forage field meeting have been held. These meetings attracted a total attendance of 900 persons.

The farm is also visited by many organized groups such as Veterans' Farm Training classes, farm tour groups, and North Carolina State College students. Fifteen organized groups consisting of 1,350 persons have visited the farm during the past two years. Many individuals or small groups visit the farm in search of answers to a specific problem, and to observe the work being done here. Approximately 500 such persons have visited the farm during the past two years.



DR. H. J. ROLLINS

VETERINARY DIVISION

DR. H. J. ROLLINS

State Veterinarian

The Veterinary Division is charged with control and eradication of infectious diseases of livestock and poultry. The Vesicular diseases, Tuberculosis, Brucellosis, Scabies, Scrapie, Animal Health Civil Defense, similar infectious and parasitic disease control programs are by co-operative agreement with the Agricultural Research Service of the United States Department of Agriculture.

The local practicing veterinarians form the first line of defense in the control and eradication of infectious diseases. They are usually the first ones to be called on to attend the infected and diseased livestock. They cooperate with the state and federal veterinarians by reporting the finding of such livestock, and are given such assistance as may be required for the control of the particular disease affecting the animals.

The tremendous increase in the numbers of Grade A Dairies and the beef cattle population, the mass movement of livestock through markets, the enforcement of the garbage feeding law, the constant inspection of garbage fed swine and the increased numbers of birds in poultry hatchery flocks, require a proportionate increase of the services and responsibilities of the personnel of the division.

The opening of the new large-animal diagnostic laboratory and the control and eradication of eighteen outbreaks of Vesicular Exanthema of swine are two of the most important achievements of the Division during the biennium. Two new Poultry Diagnostic Laboratories were established at North Wilkesboro and Monroe to provide additional disease control services for these important poultry producing areas. The Diagnostic Laboratories are an essential part in maintaining healthy livestock and poultry. A proper diagnosis is an aid in the control and eradication of the many infectious and parasitic livestock and poultry diseases transmissible to man, and therefore essential to adequately protect public health.

ANAPLASMOSIS

Anaplasmosis, caused by a microparasite, is one of the serious diseases of cattle in North Carolina. The disease is spread from infected to healthy animals by ticks, horseflies, mosquitoes and other biting insects as well as by unclean surgical procedures. Recovered animals remain permanent carriers. The key to the problem of control and eradication of Anaplasmosis is the carrier animal. Thus far, an exact therapeutic agent for the treatment of the disease in the acute form and during the carrier stage has not been found.

ANTHRAX

In a manufacturing establishment using imported goat hair, one employee contracted cutaneous Anthrax in March of 1953. The imported goat hair was found to be highly contaminated with Anthrax spores. A large number of the plant's employees lived on livestock farms. The employees usually returned to their homes wearing their work clothes which very likely collected Anthrax contaminated goat hair. The sewage disposal and drainage from this plant emptied into streams flowing through farms with a large livestock population.

The plant was closed and thoroughly cleaned and disinfected. The imported goat hair is now being sterilized at a sufficient temperature to destroy Anthrax spores prior to shipment into North Carolina. Subsequent tests on the imported goat hair and other material at this plant were negative to Anthrax spores. The method of Anthrax control adopted probably prevented outbreaks of the disease in livestock in the area. There is no known method of sterilizing soil contaminated with Anthrax spores. Livestock Anthrax has not been diagnosed during the present biennium and no additional human cases have been reported.

BRUCELLOSIS

The Brucellosis control and eradication program is conducted by the Veterinary Division cooperating with the Animal Disease Eradication Branch of the United States Department of Agriculture and the accredited practicing veterinarians in North Carolina.

The number of Brucellosis tests on blood samples submitted to the laboratory continues to increase each biennium. North Carolina was classed as a modified Brucellosis free area on July 1, 1942, and continues to maintain that desirable health status. A regulation adopted by the Board of Agriculture, providing that Brucellosis reactors be permanently removed from dairy herds producing graded fluid milk, became effective July 1, 1952. The test and slaughter of reactors has given excellent results in cleaning up herds infected with Brucellosis and in the maintenance of Brucellosis free herds. The animal-human health problem is ever present when reactors are not slaughtered. The percentage of Brucellosis infection found in the fiscal year 1953-54 showed a noticeable decline over the preceding year.

A number of purebred swine breeders over the state have adopted a Brucellosis control program in their herds. Swine blood samples submitted to the laboratory for Brucellosis test continue to increase each year. Human Brucellosis of swine origin is more often found than Brucellosis contracted from cattle. An accelerated swine Brucellosis program is necessary in the interest of public health, as well as for the protection of swine.

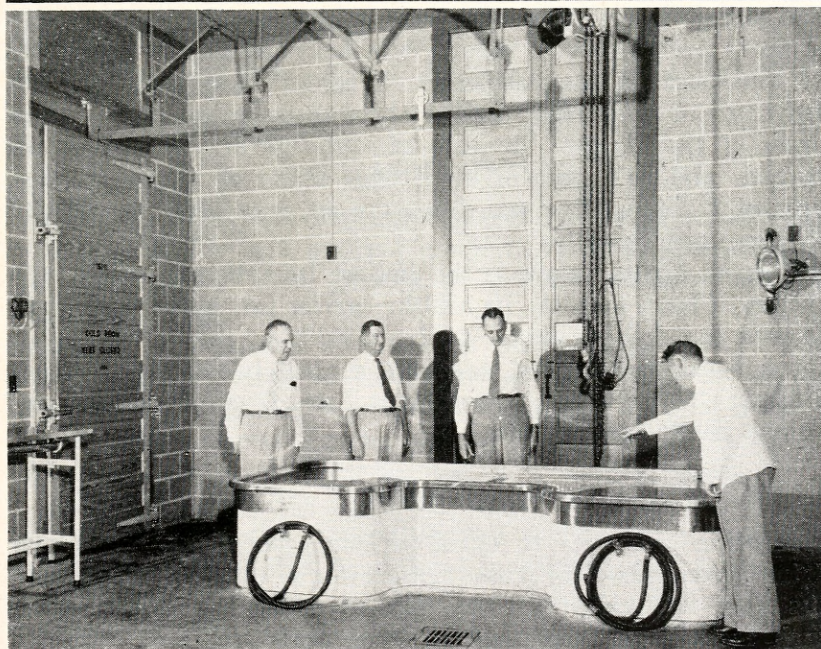
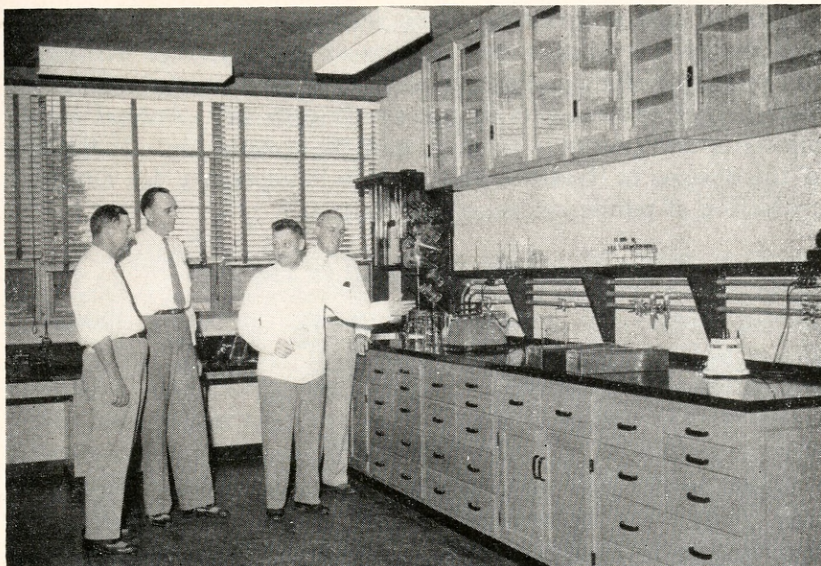
SUMMARY OF BANG'S TESTING

	Herds Tested	Cattle Tested	Number of Reactors	Percentage of Infection	Number of Calves Vaccinated
July 1, 1952 to June 30, 1953	28,343	300,989	2,097	.7 of 1%	2,053
July 1, 1953 to June 30, 1954	29,105	287,759	1,542	.5 of 1%	1,504

TUBERCULOSIS

The tuberculosis control and eradication program in North Carolina is by cooperative agreement between the Veterinary Division and the Animal Disease Eradication Branch of the United States Department of Agriculture, with accredited veterinarians participating. North Carolina has been classified as a modified tuberculosis free area since 1928. Annual tuberculin testing of cattle is necessary to keep down the spread of this disease. Early detection and slaughter of a tubercular cow prevents further spread in the herd and to other herds.

Swine and poultry are susceptible to tuberculosis. A Federal Meat Inspector reported finding thirty-nine tubercular swine on post mortem inspection in the fiscal year 1952-53. These swine



A new Large-Animal Diagnostic Laboratory is an important addition to the Veterinary Division's facilities. Shown inspecting the laboratory (top photo, left to right) are Dr. H. J. Rollins, State Veterinarian; John L. Reitzel, Assistant Commissioner of Agriculture; Dr. Donald E. Cooper-rider, Director of Diagnostic Laboratories; and Agriculture Commissioner L. Y. Ballentine. Pictured below is the laboratory's autopsy room.

originated in a large group being fed raw garbage. The garbage feeding law prohibiting the feeding of raw garbage will materially aid in reducing the incidence of tuberculosis in swine. The incidence of tuberculosis in poultry is very low. Animal tuberculosis is transmissible to man, and the control and eradication of the disease in livestock and poultry is necessary for adequate protection of public health.

SUMMARY OF TUBERCULAR TESTING

	Herds Tested	Cattle Tested	Number Reactors
July 1, 1952 to June 30, 1953	7,847	113,663	1
July 1, 1953 to June 30, 1954	9,537	129,660	4

LEPTOSPIROSIS

Leptospirosis has been diagnosed in dairy cattle for the first time during the present biennium. Canine Leptospirosis has been known to exist in North Carolina for a number of years. The disease may vary from a form so acute that it causes death in from twenty-four to seventy-two hours to one so mild as to go unnoticed by the herdsman. Pregnant cows may abort at any stage of pregnancy, usually about three weeks following the onset of the disease. Because of wide variations in both the number and acuteness of symptoms, many of which are also present in other diseases, Leptospirosis may often be difficult to diagnose clinically.

Because of the nature of the disease, its ability to infect most species of large animals, its healthy carrier problem, its reservoir in wild life and its ability to live outside of the animals' body for a considerable time, adequate control has been extremely difficult. The disease is important both from an animal and human health standpoint.

MASTITIS

Mastitis continues to exact serious economic losses in our dairy herds. Mastitis causes both lower production and numerous herd replacements. This disease cannot be controlled by such methods as are used in the control and eradication of Tuberculosis and Brucellosis. Herd replacements often create additional disease problems. Healthy animals from healthy herds should always be obtained for such replacements.

A high percentage of infection is due to injuries that could be prevented by proper construction of housing for the milking herd. Sanitation, management and differential diagnosis, together with the use of medicinal agents now available, are essential aids for the control of Mastitis.

HOG CHOLERA

Hog cholera is the most deadly disease of swine in North Carolina. Its rapid onset and usually fatal termination result in serious economic loss. Mass movement of infected and exposed swine or swine from infected premises, and the use of virulent virus, are the major factors in the spread of hog cholera.

The adoption of a proper sanitation and management program is necessary for the control and eradication of infectious diseases of swine. Isolation of herd additions and frequent moving of swine to clean ground is an essential part of the program. A general educational program outlining the protective values of serum, killed vaccine, and a modified virus vaccine will hasten the date that the use of virulent virus may be abandoned. A uniform national hog cholera eradication program should be adopted.

VESICULAR EXANTHEMA

Vesicular Exanthema, a virus disease of swine, first appeared in North Carolina in a group of twenty-five swine shipped from National Stock Yards, Illinois, to Raleigh, North Carolina, August 4, 1952.

This disease is characterized by high temperature in the initial stages followed by the formation of vesicles or blisters on the snout, tongue, soft tissues of the mouth, teats of nursing sows and on the coronary area and pads of the feet and is usually accompanied by severe lameness and rapid loss of weight.

Vesicular Exanthema so closely resembles Foot and Mouth disease and Vesicular Stomatitis that a differential diagnosis cannot be made except by animal inoculation and laboratory examination. A proper diagnosis is essential to adequately protect susceptible livestock from the feared Foot and Mouth disease.

The incubation period of Vesicular Exanthema varies from one day to more than 14 days but usually occurs in 36 to 72 hours following exposure. Death losses are relatively low unless com-

plicated by secondary infection. The virus is present for an unknown length of time in tissues of the recovered animals.

A state quarantine is immediately placed on all the swine and the premises when infected or exposed swine are located. Following a positive diagnosis of Vesicular Exanthema, rapid liquidation of infected and exposed swine and disposal of the carcasses by processing, rendering or burial, are necessary to eradicate the disease. The premises are cleaned and disinfected following disposal of the animals.

North Carolina exports several hundred thousand swine each year for slaughter and breeding purposes. The control and eradication of Vesicular Exanthema is necessary for the economic survival of the swine industry in North Carolina. The value of infected or exposed swine is of minor economic importance compared to losses sustained because of prohibited or restricted movement of healthy swine to markets from a quarantine area or state. This causes owners to miss top markets for slaughter and the sale of breeding animals. A number of states immediately prohibit the importation of swine from such states or areas.

The feeding of raw or contaminated garbage to swine is the primary source of the infection. Secondary spread is caused by exposure to infected animals and contact with contaminated vehicles and premises. In 1953 a garbage feeding law was enacted by the North Carolina Legislature prohibiting the feeding of untreated garbage to swine. The garbage feeding law is enforced by state and federal inspectors under a cooperative agreement with the Animal Disease Eradication Branch of the United States Department of Agriculture. The state and federal inspectors and veterinarians inspect twice each month the 800 garbage feeding establishments and the garbage fed swine on the premises.

The number of swine fed on garbage consists of less than two per cent of the total swine population of the state. The small numbers of garbage fed swine are a continuing menace to the swine industry. The frequent inspections are expensive but must be continued to prevent outbreaks of Vesicular Exanthema. The garbage feeding premises as a whole were found to be in bad sanitary condition on the first inspections in 1953 but rapid improvements were made. The majority of the present garbage feeders are complying with the law. The small garbage feeders

VESICULAR EXANTHEMA OUTBREAKS

Name and Address	Date	No. of Swine	Origin
R & S Packing Company Raleigh, N. C.	August 4, 1952	25	National Stock Yds., Ill.
Wilbert J. Farrar Chapel Hill, N. C.	February 23, 1953	36	Raw garbage
Hubert Atwater Chapel Hill, N. C.	March 9, 1953	31	Raw garbage
Meggs & Green Smithfield, N. C.	March 22, 1953	115	Unknown
Carolina Packers, Inc. Smithfield, N. C.	March 26, 1953	166	Unknown
Belton Horsley Charlotte, N. C.	April 1, 1953	20	Raw garbage
Hornaday Abattoir Snow Camp, N. C.	April 6, 1953	102	Suspected exposure to Indiana Swine
John W. McGinn Charlotte, N. C.	April 13, 1953	90	Raw garbage
Millikan Sausage Company Asheboro, N. C.	April 22, 1953	50	Columbus, O.
Chester R. Malcom Charlotte, N. C.	April 25, 1953	54	Raw garbage
Allen Pollock Jacksonville, N. C.	May 8, 1953	48	Raw garbage
John P. Wyatt Raleigh, N. C.	May 11, 1953	23	Raw garbage
Robert L. McLamb Shallotte, N. C.	December 7, 1953	50	Unknown
Washington Hog Market Washington, N. C.	December 22, 1953	12	Garbage
Herbert Weston Wilmington, N. C.	December 22, 1953	71	Garbage
Wilmington Stock Yards Wilmington, N. C.	December 22, 1953	18	Garbage
Revelle, Deloatch & Barnes Murfreesboro, N. C.	January 5, 1954	163	Unknown
Faust, Aydlett & Rochelle Newport, N. C.	January 15, 1954	748	Virginia Imports

are less cooperative than those feeding large numbers of swine. Ten garbage feeders have been convicted in court for failure to comply with the law.

Vesicular Exanthema was found on 18 premises in North Carolina from August 4, 1952, to January 15, 1954. A total of 1,822 infected and exposed swine have been liquidated. Diseased swine that died between the initial onset and the date of official diagnosis were disposed of by burial or rendering. Indemnity payments of \$13,656.32 have been paid by the state and the same amount by the federal government under the cooperative indemnity payment program. Excellent cooperation by the owners of diseased and exposed swine has made it possible for the state and federal veterinarians to control and eradicate Vesicular Exanthema in North Carolina. The swine industry as a group has supported a program of control and eradication of Vesicular Exanthema.

OTHER DISEASES OF SWINE

Parasitic diseases of swine are of major importance. The losses sustained extend over a much longer period of time than that caused by hog cholera and some of the other infectious diseases. Parasites are directly responsible for a number of deaths but the major losses frequently result from the lowered resistance of the individual animal and in a much higher cost per pound of gain than in swine that are free from parasites. The lowered resistance caused by parasites is a pre-disposing cause of disease. Many outbreaks of infectious, nutritional, and non-infectious diseases of swine result both directly and indirectly from internal and external parasitic infestation. Proper therapeutic medication and the frequent movement of the swine to clean premises is a major factor in the control and eradication of parasitic diseases.

Salmonella organisms causing acute and chronic intestinal disorders, swine erysipelas and swine plague continue to exact swine losses. Vesicular stomatitis occurred in one herd of twenty swine in May 1953. The importance of vesicular stomatitis is its similarity to vesicular exanthema and foot and mouth disease.

POULTRY DISEASES

Control and eradication of the numerous infectious diseases of poultry play an important part in the successful operation of the expanding poultry industry. The poultry diagnostic

laboratories perform autopsies on 1,200 to 1,500 birds per month. The most prevalent poultry diseases found are Leucosis, Respiratory, Enteritis, Coccidiosis, Typhoid and Paratyphoid, Pullorum, Blackhead of turkeys, Newcastle and Blue Comb. A smaller percentage of twenty other infectious, parasitic and nutritional diseases are of major importance to the poultry industry.

Chick-embryo fowl-pox vaccine contaminated with pullorum disease organisms was used on a large number of flocks involving approximately 150,000 birds. These highly infected flocks were either sold or used in commercial egg production instead of hatchery flocks.

There is a definite trend toward white breeder stock. Of the birds tested in the first year of this biennium, 72.4 per cent were New Hampshires and 14.4 per cent were White Rocks. In the fiscal year 1953-54 only 25 per cent of the birds tested were New Hampshires and 55.6 per cent were White Rocks.

SUMMARY REPORT

PULLORUM ERADICATION AND FLOCK IMPROVEMENT WORK

Hatcheries	1952-53	1953-54
Total No. Hatcheries	172	170
No. Hatcheries in NPIP & NTIP	170	168
No. Hatcheries Not in NPIP	2	2
No. Turkey Hatcheries	14	13
Hatching Egg Dealers	15	21
Pullorum Testing	1952-53	1953-54
No. Flocks Tested	3,118	3,268
No. Birds Tested	1,654,862	2,405,771
Percent Reactors	0.05%	0.01%
No. Turkey Flocks	70	58
No. Turkey Breeders	37,036	39,702
Percent Reactors	0.28%	0.14%

It is encouraging to know that with the large increase in the number of birds tested this year, as compared to last year, there was a reduction in the incidences of pullorum disease.

It must be mentioned, however, that these figures do not reflect the serious effect contaminated fowl pox vaccine had on a large number of flocks involving approximately 150,000 birds. Most of the testing of those birds was done by agents and only a small percentage of the reports were submitted to this office.

DISEASES OF HORSES AND MULES

The population of horses and mules on North Carolina farms continues to decrease. The number of animals moved by shipping and through sales barns has been reduced in approximately the same ratio. The infectious diseases affecting horses and mules have been minor in character during the biennium.

Equine encephalomyelitis, a virus disease of horses and mules, has not been very prevalent during the biennium. The disease is usually spread by biting insects and is transmissible to man. We find that encephalomyelitis is more prevalent in the coastal counties than in other sections of North Carolina.

PUBLIC LIVESTOCK AUCTION MARKETS

The 52 public livestock auction markets present a huge disease control problem because of the many sources of origin, concentration and contact created by the mass movement of livestock. The sanitation of most markets has shown some improvement. Sanitation of the swine holding pens has shown the greatest improvement due to the fear of Vesicular Exanthema.

The livestock market inspectors are usually able to properly inspect livestock auction markets having their sales on Mondays and Fridays. The majority of the markets hold their sales on Tuesdays, Wednesdays and Thursdays and there is insufficient personnel to give proper inspection to the markets during those three days. A law providing for the licensing and control of the operations of cattle traders and pig dealers should be enacted.

WAREHOUSE DIVISION

A. B. FAIRLEY

State Warehouse Superintendent



A. B. FAIRLEY

Due to the increased demand for grain storage over the entire state, several grain warehouses have been licensed by the State Warehouse System with a storage capacity of over one million pounds. Other facilities for grain storage are in the process of construction and applications for license have been received. These facilities will be licensed as soon as the construction work is completed.

Several applications for loans for the construction of grain storage warehouses have been received and loans have been made on warehouses at Newton Grove, Mount Olive and Wadesboro. Warehouses for storage of peanuts and lespedeza have also been licensed.

The number of cotton warehouses licensed during the 1952-54 biennium was about the same as in the previous biennium. There were eighty-six warehouses licensed for storage of cotton with a total capacity of 525,000 bales. These warehouses handled over 400,000 bales of cotton yearly.

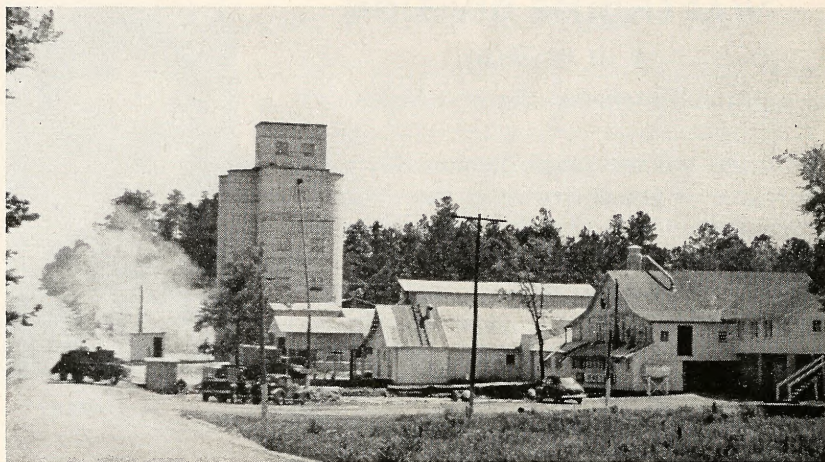
During 1954 a fire occurred at the Laurinburg Cotton Warehouse, damaging approximately 600 bales of cotton. The cotton was adequately insured and settlements are being made with depositors as rapidly as possible.

Payments of interest and principal of loans have been met promptly. In addition to the loans made on grain storage warehouses, a loan was made on a warehouse in Conway for storage of both cotton and peanuts.

FINANCIAL STATEMENT OF THE WAREHOUSE SYSTEM

June 30, 1952

Cash on Hand Principal Fund	Cash on Hand Supervision Fund	First Mtges. Loans	Invested in Government Bonds
\$9,234.63	\$38,985.96	\$187,021.44	\$550,000.00
June 30, 1954			
\$5,699.83	\$24,982.86	\$295,900.00	\$440,000.00



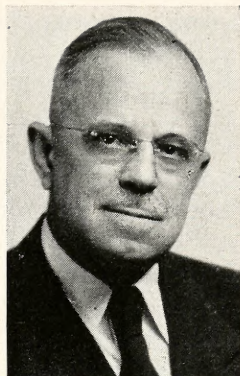
Warehouse Fund loans have helped in fostering the Department's program to increase grain storage facilities. The first loan of this kind, made to House Milling Company of Newton Grove in 1953, also aided the Department's corn meal improvement project. The new grain elevator erected by this firm, shown in the top photo above, has a capacity of 50,000 bushels. It not only provides public storage, but enables the mill to buy and store corn at the time of year when the grain has the best qualities for making corn meal. Pictured below is the 125,000-bushel grain storage facility erected by the Mount Olive Grain Company, Inc., for which a Warehouse Fund loan was granted in the spring of 1954. This will help fill the need of Wayne County farmers for storage space to preserve their corn and take advantage of the corn loan program.

DIVISION OF WEIGHTS AND MEASURES

C. D. BAUCOM

Director

This Division was originally set up to administer the Uniform Weights and Measures Law. Through the years, however, other responsibilities have been added, including gasoline and oil inspection and administration of a number of other laws governing the quality of certain products or safety measures to be observed in their handling and sale.



C. D. BAUCOM

Several new responsibilities were added under laws enacted by the 1953 session of the General Assembly. These include the Liquid Fertilizer Act, the Re-Refined Motor Oil Act, and an amendment to the Liquefied Petroleum Gas Law.

A new calibrating station and laboratory, completed in the spring of 1954, marked a great forward step for the Division. This was formally opened on April 8, with an acceptance speech by Governor William B. Umstead and an address by Dr. A. V. Astin, noted scientist and Director of the National Bureau of Standards.

This calibrating station is the most outstanding in the United States. It has a "four-in-one" scale, with a total capacity of 170 tons (340,000 pounds), and an overall length of 73 feet, 8 inches, which can be used to ascertain the total weight of a vehicle or the weight of each axle independently; and automatically prints a weight ticket. Equipment is provided for volumetric calibration of tank trucks at the rate of 800 gallons per minute into from one to four compartments simultaneously, also with automatic ticket printing mechanism.

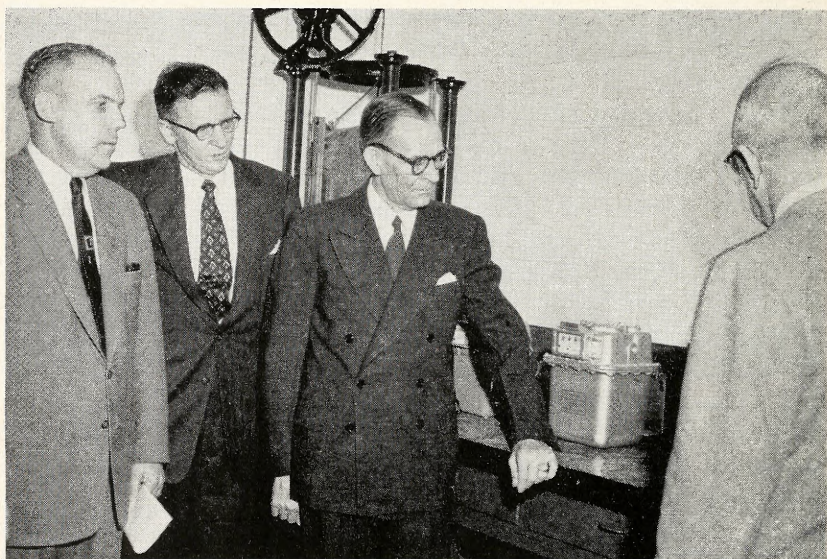
In the calibrating station are standards certified to by the United States Bureau of Standards, which include weights from one-tenth of a grain up to 1,000 pounds, and volumetric measures ranging from one gill to 1,000 gallons.

The laboratory is equipped for testing gasoline for octane rating, gum residue content, and kerosene for flash point and end point; for calibrating liquefied-petroleum-gas meters by both volumetric and gravimetric methods; for calibrating bulk plant

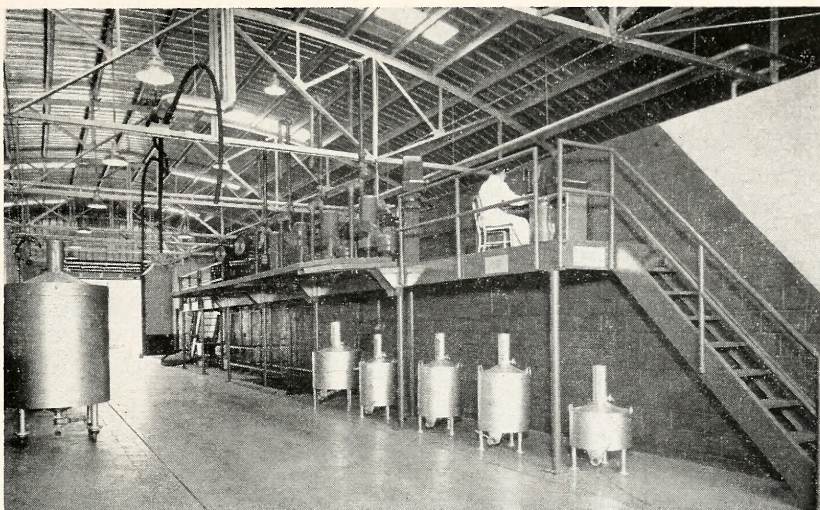
gasoline meters, including three-inch intake size; for determining the BTU content of fuels and for analyzing re-refined oil. Just recently apparatus was installed for testing diesel fuel for anti-knock and firing qualities.

Equipment for testing the load bearing strength of concrete block and other masonry units is another recent addition to the laboratory. With this equipment the Division is in a position to enforce stricter regulations for this product adopted by the Board of Agriculture in April, 1954. These tighter restrictions were backed by the North Carolina Concrete Masonry Association, which organization had requested them even earlier. But without means for testing blocks, this Division was not in a position to enforce any more stringent measures than were then provided in the regulations.

In the regular routine inspection work during the past two years, weights and measures inspectors have visited 25,925 places of business. They have inspected 54,522 scales, 31,601 weights, 38 standard measures, 175,386 packages being offered for sale, 4,234 deliveries of all kinds (such as coal, ice, grain, etc.), 629 milk containers, 660 concrete blocks, 488 taxi meters,



Shown inspecting some of the apparatus at the new Calibrating Station in Raleigh are, left to right, Agriculture Commissioner L. Y. Ballentine, Dr. A. V. Astin, Director of the National Bureau of Standards, Governor William B. Umstead, and C. D. Baucom, State Superintendent of Weights and Measures.



At the new station tank trucks can be calibrated by either weight or volume. Volumetric calibration can be run at the rate of 800 gallons per minute. Volumetric meters and scales are equipped with automatic ticket-printing mechanisms.

two electric meters, 183 cucumber graders. They reweighed 1,834,205 pounds of tobacco in 12,244 baskets on tobacco warehouse floors, inspected 6,768 tobacco curing barns relative to fire hazard, and made 361 special investigations.

Gasoline and oil inspectors visited 72,818 filling stations; inspected for accuracy 133,884 gasoline and diesel pumps, 56,807 kerosene pumps, 70 lub-oil pumps, and 7,077 meters; calibrated 955 tank trucks, 7,018 liquid meters and 13,727 oil bottles.

Analytical service is divided between the central laboratory at Raleigh and field laboratories. The central laboratory analyzes gasoline for octane rating, flash and end points, gum content, and residue. The field laboratories, consisting of 12 mobile units, collect samples at the terminals, bulk plants and local filling stations, sending part of them to the central laboratory and running on-the-spot analyses on the others. During this biennium the central laboratory analyzed 30,063 samples of gasoline and 52 samples of kerosene. The field laboratories analyzed 37,656 samples of gasoline and 19,581 samples of kerosene, making a grand total of 67,719 samples of gasoline and 19,633 samples of kerosene.

This Division also calibrates and tests for accuracy the trucks used in making local deliveries of gasoline, kerosene and fuel oil to filling stations, grocery stores and private homes. Three mobile units are now used for this work and it is hoped that a fourth can be added in the near future. This service is welcomed by both the dealer and the consumer.

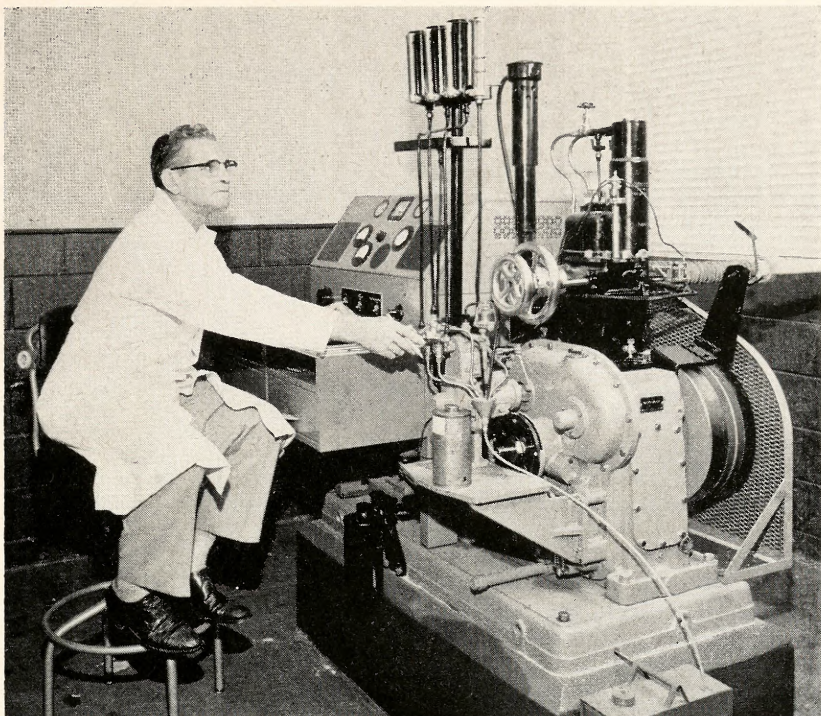
During the past year, there has been a tremendous increase in the use of liquefied petroleum gas for curing tobacco, which has resulted in submission for approval of a great many new types of gas-burning curers. There has also been a great increase in the consumption of liquefied petroleum gas for heating and cooking purposes. Since the law holds this department responsible for the handling, storing and distribution of this commodity, our concern has been increased in direct proportion to the consumption.

The Department is also responsible for the safe handling, storing and distribution of liquid fertilizers, as well as quantity and quality. This includes anhydrous ammonia which is a vapor, except under pressure, and, therefore, must be stored and distributed accordingly. In order to provide for adequate and accurate quantity determination, the Board of Agriculture adopted minimum specifications, rules and regulations dealing with this commodity, which, among other things, provide for the registration of distributors and contractors who sell to the farmer and/or apply liquid fertilizer to the soil. The inspection service follows from the time the product enters the state until it is applied to the soil. Activities in this field of endeavor have been limited, however, to \$5,000 a year, the amount appropriated for this purpose by the last session of the General Assembly.

In 1952 the Department of Agriculture received some complaints of alleged abuses of the tobacco weight tolerance permitted under regulations. The tolerance was intended to allow for weight changes due to variations in atmospheric conditions.

During the tobacco marketing season that year this Division conducted an intensive survey to determine actual weight variations in tobacco while it is on the warehouse floor. The test period ran from September 6 to September 29.

Results of the survey were reported to the Board of Agriculture. After a public hearing, the Board amended the regulations to change the tolerance on a basket of tobacco from two percent or six pounds (whichever was less) to a tolerance not exceeding



A cetane engine used for testing the quality of diesel fuel.

two pounds on a basket weighing 175 pounds or less and not exceeding four pounds on a basket weighing more than 175 pounds. The Board also added a provision that consistent short weights in any warehouse shall "raise a presumption of erroneous weighing."

It is gratifying to report that, as a whole, all merchants, dealers and distributors recognize the importance of having accurate weighing and measuring devices, and have cooperated splendidly in support of the Uniform Weights and Measures Law, the prime objective of which is, "To protect the purchaser . . . and to provide one standard of weight and of measure throughout the state." Considering the number of inspections covered by this report, the number of condemnations, prosecutions, and special investigations are very small.

Finally, it can be said that the weights and measures and weighing and measuring devices in use in North Carolina are accurate and dependable, and the quality of petroleum products is well above standard.

